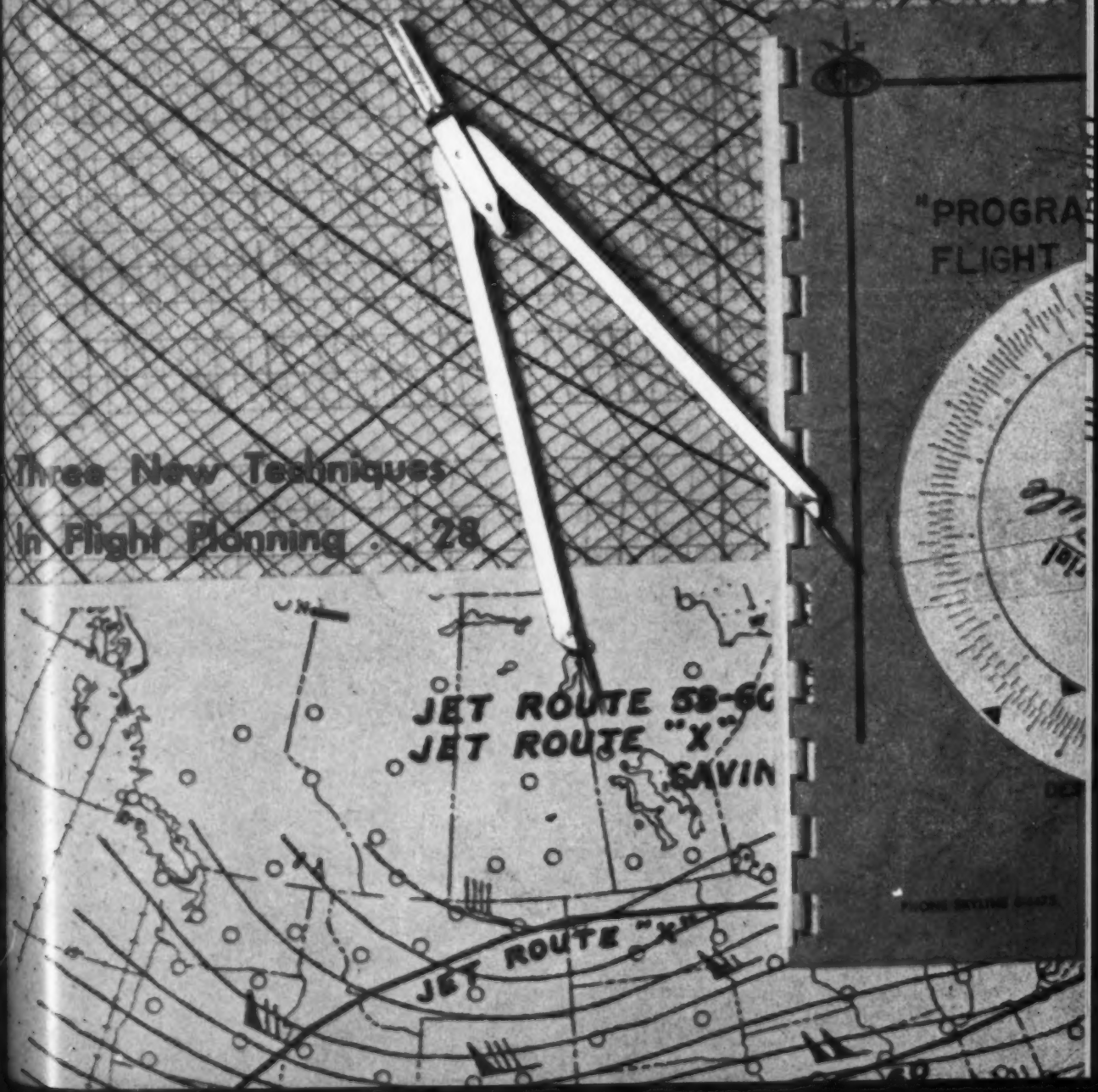
REFERENCE COPY

airlift

WORLD AIR TRANSPORTATION

RECEIVED
OCT 6 1960
ARMY LIBRARY
RECORD



Three New Techniques In Flight Planning . . . 28

Dear American Airlines:
I average 50,000 miles per year on commercial airlines - so I recognize good service when I see it. My flight was made unusually pleasant – thanks to your Miss Clare Vix and Miss Valerie Franks. I'd like to have them in my public relations department!
W. E. Uzzell

UNSOLICITED IN-FLIGHT LETTER FROM MR. W. E. UZZELL, V. P. OF ROYAL CROWN COLA CO., COLUMBUS, GA.

Memo to Travel Agents: Our Stewardesses are another reason why American Airlines is first choice of experienced travelers. They are the graduates of American Airlines' unique Stewardess College, the only one of its kind. When booking your clients, place them in the expert care of these gracious and capable young ladies. **AMERICAN AIRLINES** *America's Leading Airline*

GOODYEAR

CREDENTIALS FOR ANOTHER CAPABILITY

TREAD AND SHOULDERS ABOVE THE REST!

Say you're just about to lift a 100-ton jetliner off the runway. Behind you—a full passenger complement—fuel tanks topped off—turbines screaming at full power. Right now—a split second before breaking ground—*your tires will never take more punishment!*

But if they're Goodyear tires, they'll take it time after time. For these are the tires engineered to withstand higher loads and hotter temperatures for longer periods than any others. Whether the challenge is a 225-mph landing or an extended taxi run under load, Goodyear tires deliver performance beyond requirements. And the extra margin of reliability they provide in high-speed service, plus their longer tread and retread life, is money in the bank for airline operators.

Four major reasons account for Goodyear's commanding lead in aircraft tires:

1. Most advanced research, development, testing, and quality control facilities in the world.
2. Continuous rib treads that deliver the ideal life and stopping-power combination under both wet and dry runway conditions.
3. Unrivaled record of performance on all types of high-speed commercial and military planes.
4. Largest staff of expert aviation tire consultants, available for on-the-spot service everywhere.

Today Goodyear is fully capable of meeting *all* requirements for high-speed aircraft tires—for the jetliners flying now and tomorrow. Call your nearest Goodyear field office for complete details. Or write on company letterhead to The Goodyear Tire & Rubber Company, Aviation Products Division, Dept. V-1735, Akron 16, Ohio. Remember—lots of good things come from Goodyear.

World's fastest "runway" for advanced testing of aircraft tires is Goodyear's new multistage dynamometer system. First to accurately duplicate *all* tire operating conditions, system qualifies tires up to *320 mph*, tests materials at *500 mph*. Today it's checking out designs for 1970's tires!

Toughest jet tire is Goodyear's famous fabric-reinforced-tread tire. Diagram shows how extra-strong nylon fabric "belt" is built into tread just below surface. Fabric helps maintain tread integrity during brutal stress of high-speed landings and takeoffs.

AVIATION PRODUCTS BY

GOODYEAR

UNIFORM SHOWN: 55% "DACRON" POLYESTER FIBER, 45% WOOL

"DACRON"...FOR HANDSOME, DURABLE, MONEY-SAVING UNIFORMS!

Lasting neatness, comfort, economy... they're all yours in uniforms containing "Dacron"!

Uniforms of "Dacron"* polyester fiber and wool bring new comfort, new and lasting neatness, real durability to airline personnel. Flight and ground crews stay neat through the hardest days (even in the rain), thanks to the wrinkle resistance, press retention of "Dacron".

And, thanks to the real durability of "Dacron", replacement costs are cut. Uniforms containing "Dacron" are extra-comfortable, too . . . lightweight for warm weather, warm for colder days. Save money, keep your crews looking great . . . see your supplier soon!

DU PONT
REG. U.S. PAT. OFF.
Better Things for Better Living . . . through Chemistry
DACRON®
POLYESTER FIBER

Du Pont's registered trademark. Du Pont makes fibers, not fabrics or clothes.

AIRLIFT

EDITOR .....Wayne W. Parrish

SENIOR EDITORS
Joseph S. Murphy — Eric Bramley
William J. Coughlin — Anthony Vandyk

ASSOCIATE EDITORS
Robert Burkhardt — Phil Geraci
Richard van Osten — Don Zylstra
Charles Schaeffer — Richard Golden
Wallace I. Longstreth — Gerald Fitzgerald
Brad Dunbar — Jean-Marie Riche
Danna Kusianovich

CONTRIBUTING EDITOR .....Selig Altschul

CORRESPONDENTS
Hans G. Andersson, Sweden; Hugh Carruthers, South Africa; Paulo Einhorn, Brazil; Felipe E. Esguerro, Spain; R. N. Hughes-Jones, Australia; T. V. R'Chandran, India; Douglas S. Clark, Argentina; B. van der Klaauw, Netherlands; Wolfgang Wagner, West Germany; Kazuo Takita, Japan; Michael Donne, Great Britain.

ART
Wm. H. Martin, Director .....Joseph L. Phillips

PRODUCTION .....John Walen, Manager

EDITORIAL ADDRESS
1001 Vermont Ave., N.W., Washington 5, D.C.
Phone: Sterling 3-5400 Cable: AMERAV

BUSINESS STAFF
Gerald T. O'Mara .....Adv. Sales Mgr.
Elsie Gray .....Adv. Service Mgr.
Lawrence L. Brettner .....Circulation Director
George F. Peterson .....Circulation Service Mgr.
Richard Gibson .....Marketing Director
Carolyn DallaValle .....Production Asst.

REGIONAL OFFICES
New York City: 20 East 46th St., Gerald T. O'Mara. Phone: Yukon 6-3900.
Chicago: 139 N. Clark St. Phone: Central 6-5804.
Detroit: 412 Fisher Building. Phone: Trinity 5-2555.
Dallas: 202 Wynnewood Professional Building, Dallas 24, John L. Hathaway. Phone: Whitehall 6-8480, 3-4266.
West Coast: 8929 Wilshire Blvd., Beverly Hills, Calif. Phone: Oleander 5-9161 and Olympia 7-1555.
Florida: 208 Almeria Ave., Coral Gables. Phone: Highland 4-8326.
Geneva: 10 Rue Grenus, Anthony Vandyk. Phone: 32 10 44.
London: 28 Bruton St., Norall & Hart Ltd. Phone: Grosvenor 8356.
Paris: 11 Rue Condorcet, Jean-Marie Riche. Phone: TRU 15-39.
Frankfurt: Freidrich Ebert Anlage 3, Joachim Weissig. Phone: 334810.

SUBSCRIPTION RATES Single copies 50c. For U.S. Possessions, Postal Union and Canada: $5.00 for one year, $8.00 for 2 years, $10.00 for 3 years. Overseas: $7.00 for one year, $12.00 for 2 years, $16.00 for 3 years. Subscriptions limited to aviation industry personnel. For further information, write: Circulation Director, AIRLIFT, 1001 Vemont Avenue, N.W., Washington 5, D.C.

CHANGE OF ADDRESS Send old address (exactly as it appears on mailing label on your copy of magazine) and new address, including zone number if any to Circulation Service Manager, AIRLIFT, 1001 Vermont Avenue, N.W., Washington 5, D.C. Allow two weeks for change.

INCORPORATES Airport and Air Carriers; Aviation Equipment; The American Pilot; Aviation Sales & Services; U.S. Aviation; American Airports; Airports & Heliports and American Aviation. All rights to these names are reserved.

PUBLISHING INFORMATION Published once a month by American Aviation Publications, Inc., Washington, D.C. Printed at The Telegraph Press, Harrisburg, Pa. Second class postage paid at Washington, D.C., and at additional mailing offices.

Wayne W. Parrish .....President & Publisher
Leonard A. Eiserer .....Vice Pres. & Gen. Mgr.
Fred S. Hunter .....Vice Pres. & Editorial Dir.

BPA NBP

Copyright 1960, by American Aviation Publications, Incorporated

OCTOBER, 1960—VOL. 24, NO. 5

airlift

WORLD AIR TRANSPORTATION

THE INDUSTRY IN BRIEF

Air Transport Trends 17
Industry at a Glance 19, 22

FEATURES

Did Anyone Gain by CAB Juggling? 25
IATA 'Closed Club' Faces Turbulent Future 27
Flight Planning: A Special Report 28
Six Month Turbine Delivery Preview 34
'Open' Design Triumphs in Idlewild Terminal Contest 36
Fledgling ATCA Battles for Stature 39
Charter Growth Only Moderate 42
Medium Jets Abound at SBAC Show 44
Is Local Subsidy Here to Stay? 46

STATISTICS

Second Quarter, 1960, Turboprop Operating Costs 49
On-Time Boxscore 50
How's Traffic? 50
U.S. Airline Traffic for July 51
Second Quarter, 1960, Jet Operating Costs 52

ENGINEERING/OPERATIONS

SAS 'Go-Cart' Tests Icy Runways 57

MAINTENANCE

French SFERMA Keen on U.S. Methods 64

DEPARTMENTS

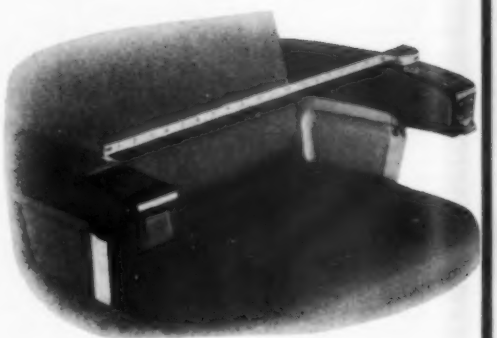
Personal View 9
Letters 11
Calendar 13
Technically Speaking 55
Pilot Talk 60
About People 63
Equipment World . 66
Info for the Asking 67
Notes About Suppliers 67
En Route 70

THIS MONTH'S COVER—With the advent of big jets, flight planning has become more exacting. The cost of high altitude errors can be staggering. To keep pace with demands for greater proficiency, three new systems have emerged. For details, see "Flight Planning," p. 28. *AIRLIFT* this month also introduces a new feature, "Pilot Talk," a contributed column by an airline pilot discussing pilot problems; p. 60.

WIDEST COACH SEAT ALOFT!

WITH SEAT BELT CRASH ABSORBER

HOW WIDE?



18 3/4 INCHES BETWEEN ARMS

WHERE!

CONVAIR 880

WHO!

MODEL TE-8
ALSO 1ST CLASS
DOUBLE 52" WID

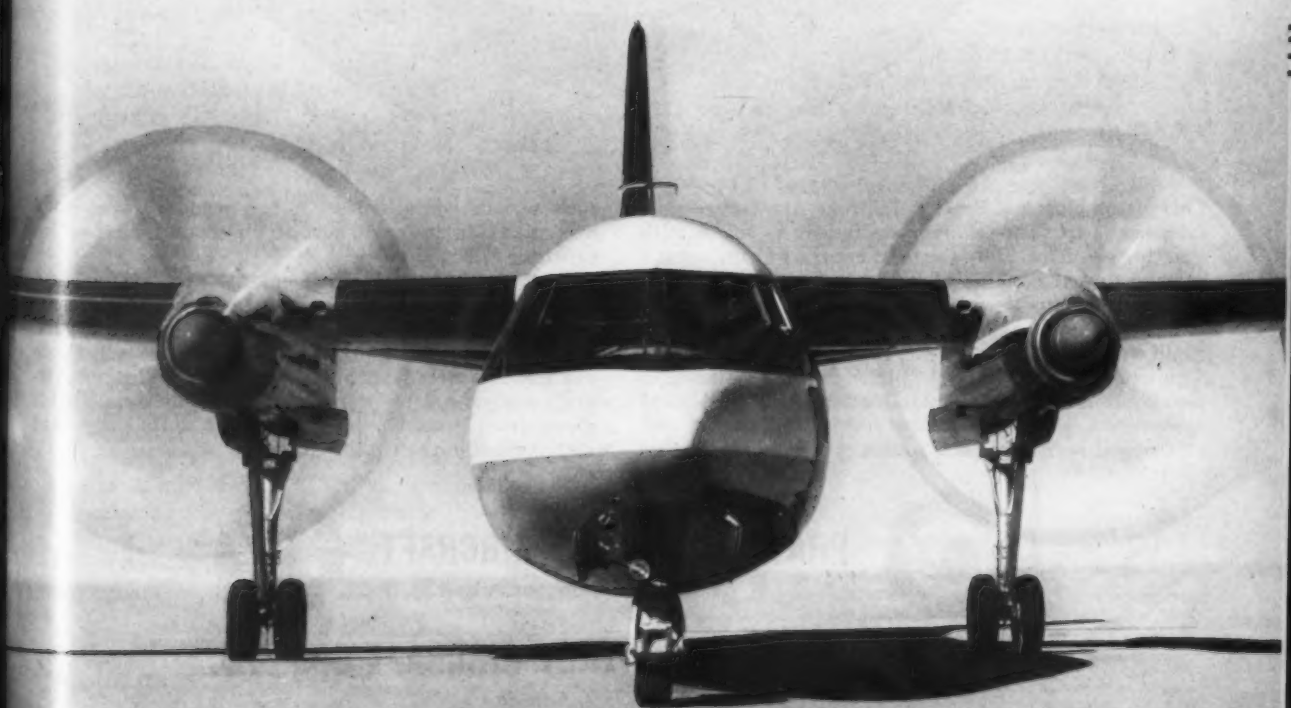
TECO INC.
DESIGNERS · ENGINEERS · MANUFACTURERS
3210 WINONA AVE · BURBANK, CALIFORNIA

VERSATILE
ECONOMICAL
RELIABLE

The Fairchild F-27, the brightest look in the corporate sky, not only offers new-plane speed and pressurized comfort but operating economy and minimum maintenance as well. This distinctive, high-winged propjet, which can perform more jobs and perform them better, has been proved in thousands of flight hours. No other aircraft in its class offers more – and delivers more – than the designed-for-business F-27.

FAIRCHILD F-27

Practical first choice for Business Flying



FAIRCHILD ENGINE & AIRPLANE CORPORATION • HAGERSTOWN, MARYLAND

AUTHORIZED SALES REPRESENTATIVES FOR F-27 BUSINESS PROPJETS: *Dallas Airmotive, Inc., Dallas, Texas* • ***Field Aviation Company,*** *Calgary and Toronto, Canada* • ***Pacific Seaboard Airlines, Inc.,*** *San Francisco, Calif.* • ***Piedmont Aviation, Inc.,*** *Winston-Salem, N. C.*

This piston plug is a Pratt & Whitney Aircraft *original equipment part.* Though inexpensive, it is made with exacting precision. Only the most accurate shadowgraph can measure the radius of its curved surface where it touches the cylinder wall.

The slightest flaw in this radius can result in spinning, rapid wear and partial disintegration of the piston plug. This can cause failure of the piston and the cylinder, or bearing failure through contamination of the lubricating system.

Original equipment parts protect your engine against such serious consequences. A few pennies saved on a look-alike substitute will never compensate for expensive repairs.

Pratt & Whitney Aircraft engines are designed and built to the highest standards of dependability, requiring constant testing and refinement of every engine part. Without these continuing improvements, no substitute can match the dependability of Pratt & Whitney Aircraft *original equipment parts.* They are quickly available direct from Pratt & Whitney Aircraft or its authorized distributors in the United States and Canada.

PRATT & WHITNEY AIRCRAFT
East Hartford, Connecticut

CANADIAN PRATT & WHITNEY AIRCRAFT CO., LTD.
Longueuil, P.Q., Canada

SST Needs A Push

ALTHOUGH MOST AIRLINE executives shudder at the very mention of supersonic transports for the obvious reason that present jet commitments are a backbreaking financial burden, the fact remains that the U.S. had better start moving toward the SST with all-out speed.

Nobody in the west knows for sure what the Soviet Union is doing in the supersonic area, but it is a reasonable bet that work is in progress. Much more to the point is the speed with which the French (and to some extent the British) have moved into the project. A high spokesman for the French aircraft industry forecasts that an SST will be flying in 1965.

Thanks to the AF, the second of a series of two studies is now underway, but these studies are much too limited in scope. Eight American manufacturers have evinced tangible interest. According to present plans, two will be selected to build prototypes, and one will eventually be chosen for production. Perhaps two or more companies will join in a production program.

Without minimizing the problems involved in a commercial operation faster than the speed of sound, there is reason for believing that too much thinking in the U.S. has focussed attention on the obstacles rather than on the desirability of solving the problems. The sonic barrier and the sonic boom may be over-rated as obstacles, at least the French think so.

SST is not the type of airplane for mass production. The world market will be limited for some time ahead. It is for the relatively long haul and intercontinental services. But some engineers believe SST can be used on much shorter segments than earlier believed possible.

The time to get going is now. The AF is to be commended for its first steps. But let the projects move steadily forward and let the nation's best talents be available.

If SST is to be a commercial reality by 1968 or 1970, there is no time to lose.

More Jet Transports

AT LONG LAST the Administration is about to put through some military orders for jet transports. Or so the "insiders" say.

It is high time. The production facilities now available are going to disappear before much longer as present commercial jet orders are completed.

Meantime the world situation has worsened, not bettered, at least from the standpoint of urgent need of modern personnel transport. MATS has been performing a terrific job on behalf of the U.N. to and from the Congo, but under handicaps which match anything in World War II. MATS, however, is operating airplanes now obsolete by any reasonable standard.

We have not altered our position that MATS should not be competing with commercial airlines, but we have long favored providing MATS with equipment it needs for such duties it is now performing in Africa. But quite apart from MATS, the U.S. government needs at its command a fleet of jet transports for a multitude of special purposes in these days when heads of government need to be on one continent one day and another the next.

Maybe the aircraft industry won't be permitted to drop out of sight after all. Let the jet orders come—and soon.

The Railroad Lobby

THE YEAR 1960 WAS NOT a very creditable one for air transportation on Capitol Hill in Washington.

Not only did the carriers fail to get good legislation, but they failed to block bad legislation.

The railroads all but clobbered the airlines in the matter of airlifting of four-cent mail, yet the railroads were acting against the public interest.

In an age when air transport is essential to the life of the country, the House of Representatives actually passed the Cunningham bill which would have stopped the Post Office Department from continuing its experiment of airlifting first class surface mail. The railroad lobby proved highly effective. Only the pressure of business prevented the Cunningham bill from getting action in the Senate.

It is ridiculous in these times that there should continue to be a differential between airmail and first class mail. All mail should be transported by the most expeditious method available and at the same rate. Europe has had such a system for so long we can't recall the date it was begun. It is perhaps time for the railroads to put public interest first, and for the airlines to get organized to combat the smelly but powerful railroad lobby that has dominated the national and state legislatures for so many decades.

Wayne W. Parrish

AiResearch cabin air compressors have proved their reliability and durability with more than 15 years of dependable operation on propeller, turboprop and jet transports. These compressors, integrated into complete air conditioning and pressurization systems, give superior performance, assured by the company's unmatched experience in developing compatible systems.

AiResearch has assumed complete system responsibility in the field of cabin pressurization and air conditioning for the world's finest propeller, turboprop and jet airliners and military aircraft.

This extensive experience in compact, reliable, highspeed rotating equipment (49,000 rpm) is now being adapted to new fields such as freon compressors utilized in ground air conditioning for both commercial and military applications.

Please direct inquiries to AiResearch, Los Angeles.

THE GARRETT CORPORATION

AiResearch Manufacturing Divisions

Los Angeles 45, California • Phoenix, Arizona

Systems and Components for: AIRCRAFT, MISSILE, SPACECRAFT, ELECTRONIC, NUCLEAR AND INDUSTRIAL APPLICATIONS

More on Cargo Airports

Ed. Note: *In the September issue was raised the question: Will the future see airports exclusively for air cargo? Comments were published from a number of key people in the industry. More letters have since come to AIRLIFT's editorial offices, and appear below.*

To the Editor:

I believe the trend to multiple airports at major cities will continue. This trend is dictated by the sheer growth and congestion of all aviation—including each class of commercial airline traffic.

So long as we must contemplate multiple airport operations, it would appear that wise and prudent planning would seek to "specialize" each airport, wherever logical and possible.

There are several factors relating to types of buildings to be constructed; heavy motor vehicle traffic; and the customary separation of any community's residential from industrial areas which may dictate the airports best qualified to specialize in cargo.

In short, I believe we shall see some airports dominated by cargo—but only as a result of other factors. I do not yet see cargo as the "cause."

EMERY F. JOHNSON
President
Air Cargo, Inc.

To the Editor:

I do not think we will see separate airports for cargo operations in the foreseeable future.

For the most part, all-cargo traffic moves at hours of the day when passenger schedules are at a low ebb, and vice versa. It is always desirable to eliminate unnecessary duplication. The public interest would seem best served by taking advantage of the total potential air distribution and this now appears most achievable from airports with the broadest destination coverage for all types of service (day and night).

I should think the volume of cargo carried in passenger aircraft would be in direct proportion to the service provided by such schedules. They provide a worthwhile service today and, accordingly, are carrying a commensurate proportion of the business. I would expect a similar pattern for the future.

E. C. TAYLOR, Vice President
Cargo Sales and Service
American Airlines

To the Editor:

I do not feel there will be a need for separate airports in the foreseeable future.

I feel we have not begun to reach the 24-hour saturation of air traffic at any of our major airports. There are peak periods when such saturation occurs. However, Los Angeles International has a capacity for 100 peak-hour movements with its three parallel runways, and a daily potential for 2,400 movements. With a present rate of 1,000 movements a day there is still room for considerable growth.

As aircraft became larger, we have had a steady decline in daily movements of five to six percent over the previous year. This trend, it appears, will continue.

I do not believe there is any special volume of cargo traffic that will make

Some Comments on 'Airbus' from the Big Trunks

Top executives of the "Big Four" airlines are taking a close look at the "Airbus" concept of expanding air transport traffic potential (AIRLIFT, "Personal View", August). Answering direct queries from AIRLIFT, here's how several airlines size up the suggestion that a new spartan approach be adopted to tap the mass travel market.

From Trans World Airlines

To the Editor:

We were encouraged by the editorial in the August issue which advocated greater savings to the passenger by elimination of some luxury items with which airline travel has so long been identified.

TWA took a positive step in this direction several years ago when we increased the seating capacity of the L-049 Constellation from 55 first class to 81 coach. This was a pioneering step in the industry which was followed by all the major carriers. Subsequently, we were first to make available for domestic tourist travel our first line aircraft of the day, the Super-G in 1955 and the Jetstream in 1957, for mixed first class and coach travel.

Prior to this, all major domestic carriers had earmarked their number one airplanes for first class travel exclusively. With the introduction of the jets in 1959, the other carriers had come around to our way of thinking and were ready to permit coach travel on the jets, as were we.

Thus, I feel it is historically established that TWA has the same interests as *AIRLIFT* in providing the most economical service to passengers consistent with good performance and reliability.

It will interest you to learn that we have had a study under way of the non-reclining Burns "aerobus" seat which would make possible the reduction in seating pitch to approximately 32 inches from the present 35-37 inches. Unfortunately, we are approaching a point of diminishing returns insofar as older aircraft are concerned.

Let me illustrate: we took up most of the slack in the 049 Constellation when we increased the seating from 55 to 81 passengers. In order to increase seating further on this aircraft we would have to provide extensive modifications to the floor strength, etc. Other modifications would be required on the Super Constellation types, such as additional emergency doors, which would tend to reduce the overall seating potential because of the spacing requirements of these Constellations.

Nevertheless, we heartily concur with *AIRLIFT* and have been carrying forth studies in connection with present and future jet aircraft.

E. O. COCKE
System General Manager
Trans World Airlines

From Eastern Air Lines

To the Editor:

I think this . . . points up the very real dilemma the industry has created for itself in not differentiating sufficiently in the public mind what first class service can represent. It properly points out the possible need for moving to further high density work. You are probably aware that we already do, in effect, have a third class of travel in our New York to Puerto Rico as well as our Miami to Puerto Rico service, the latest of which was instituted last December at a lower rate than regular coach.

We have ourselves been reviewing these very problems and expect shortly to have a consistent understandable package of service always offered to first class and no one else, and we likewise are giving serious consideration to extending our high density work.

MALCOLM A. MACINTYRE
President
Eastern Air Lines

From American Airlines

To the Editor:

All of us at American read "Personal View" with great interest, for it dealt with a subject which has been much discussed and studied here. Obviously, a "Spartan low fare air bus," if successful, would provide an interesting new service, and possibly new earnings.

Unfortunately, our studies have failed to demonstrate that it would be practical to bring about a cost reduction large enough to permit a sufficiently attractive fare, in short-haul service, to create the new market which would be needed. Some of the material we submitted in the Short-Haul Coach case bears on this problem.

Circumstances, however, change, and we will continue to analyze the idea of a service of this type. If such a service should one day hold real promise of being economically feasible, American would like to be the first to offer it.

G. MARION SADLER
Vice President and General Manager
American Airlines

And from United

To the Editor:

We in United Air Lines are spending a very large amount of money in market research to answer the very question raised by your editorial.

Time or space does not permit me to answer the question as it should be answered. This is a very complicated subject because it confuses a normal mass market which is entirely separate and distinct from a mass transportation market. There is a great distinction between the two and many overlook the difference.

W. A. PATTERSON
President
United Air Lines

Put this RCA Weather Eye on Your Aircraft

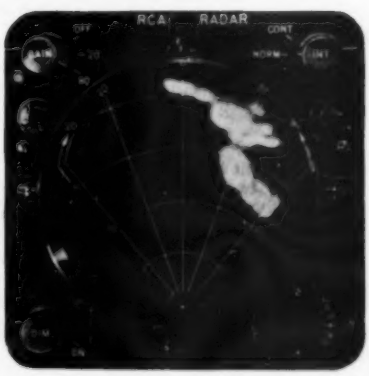
...and "see" the weather miles ahead!

It's the RCA AVQ-50 Weather Radar, specially designed for use in aircraft where weight, space and power are at a premium.

In thousands of installations, the AVQ-50 has cut operating costs of business and executive aircraft, improved on-time arrival and increased passenger comfort. By "seeing" the weather far ahead, your pilot can go around or between turbulent areas and often avoid long and costly detours, greatly increasing the effectiveness and economy of your aircraft.

Because it contributes to safety, as well as improved scheduling and flying comfort, weather radar has been designated as required equipment for most commercial airlines. By making the AVQ-50 lighter, smaller and less costly RCA makes it available to most executive and business aircraft.

For complete information, get in touch with the nearest Authorized RCA Dealer listed on the opposite page, or address: Radio Corporation of America, Aviation Division, 11819 W. Olympic Blvd., Los Angeles 64, California.



RCA

The Most Trusted Name in Electronics

RADIO CORPORATION OF AMERICA

For full information about the RCA WEATHER RADAR get in touch with your nearest RCA authorized dealer listed below.

Aircraft Radio & Accessory Co.
Denver 7, Colorado

Airmar Radio Service, Inc.
Ronkonkoma, N. Y.

AiResearch Aviation Service Co.
Div. of Garrett Corp.
Los Angeles 45, California

Anderson Aircraft Radio Co.
Detroit, Michigan

Associated Radio Co.
Dallas, Texas

Atlantic Aviation Corp.
Wilmington, Del.

Butler Aviation, Inc.
Chicago 66, Illinois

Butler Aviation
Milwaukee 7, Wisc.

Butler Aviation
Washington, D. C.

E. Farnell & Co., Inc.
Palm Beach, Florida

Flightcraft, Inc.
Portland, Oregon

Florida Aviation Corp.
Miami 48, Florida

Gopher Aviation, Inc.
Rochester, Minn.

Minnesota Airmotive
Minneapolis 50, Minn.

Ohio Aviation Company
Dayton, Ohio

Piedmont Aviation, Inc.
Winston-Salem, N. C.

Qualitron, Inc.
Burbank, California

Reading Aviation Service, Inc.
Reading, Pa.

Remmert-Werner, Inc.
St. Louis, Missouri

Robbins Aviation Corp.
Pontiac, Michigan

Roscoe Turner Aeronautical Corp.
Indianapolis 21, Indiana

San Jose Avionics Co.
San Jose, California

Smith-Meeker Eng. Co.
New York 7, N. Y.

Southern Airways Company
Atlanta, Georgia

RCA®

cargo airports necessary. Previous railroad experience indicated that they never quite got around to all-cargo tracks, in spite of the fact that they enjoyed no competition from airplanes and trucks over a considerable portion of their existence.

FRANCIS T. FOX, General Manager
Department of Airports
City of Los Angeles

To the Editor:

At present and for the past 15 years Miami has handled "all cargo" and "top-off cargo" at the same field, Miami International. Various consultants have recommended phasing out all-cargo to another airport if passenger traffic increases according to their anticipation.

I am not qualified to differ with such learned men. However, it is my opinion that it will be a long time before cargo is removed from the big hub airport because that is where the traffic and business centers are located.

ALAN C. STEWART, Director
Dade County Port Authority
Miami, Florida

To the Editor:

A review of air cargo's growth at this facility reveals a ten-fold increase by weight in the last decade. This is very significant. However, the total weight of air cargo now being processed amounts to between eight to ten percent of the weight of passengers originating or terminating at this facility.

To keep pace with the increased need for air cargo facilities we have dedicated two new buildings devoted exclusively to freight. They comprise 67,000 sq. ft. and bring the total area now devoted to cargo to approximately 100,000 sq. ft. exclusive of truck paving, utilities and apron areas. Plans for expansion contemplate another building of 40,000 sq. ft.

This development is considered an interim arrangement pending the development of an Air Cargo City to take care of the future air cargo era. The area presently dedicated exclusively to air cargo is approximately 28 acres. It is estimated that this facility will be adequate for seven to ten years.

A study of traffic indicates that the volume of movements at this airport could be increased substantially to take care of increases in air cargo activity. It would undoubtedly prove more economical to integrate air freight movements than to develop additional runways, taxiways and other airport facilities at another location at tremendous cost.

It is my opinion that the integration of an expanded air cargo activity at a major airport such as San Francisco will be achieved long before we can justify separate airport facilities.

H. S. MESSERSMITH
Superintendent of Airport Operations
San Francisco International Airport

Be Cautious With Teflon

To the Editor:

This is in reference to the hot wire stripper mentioned on page 86 of the September issue.

I don't know what temperature is involved in this application, but I do know that burning Teflon is extremely toxic. There have been fatalities.

In one case chips of Teflon fell on a pack of cigarettes and the man died when he smoked one of them.

MURRAY SCHOENBERGER
Silver Spring, Md.

Praise for TWA Base

To the Editor:

We have read with interest your article in the June publication relative to Northwest Airlines' new maintenance and overhaul base. While we have not had the pleasure of visiting NWA's new facility, we do feel the statement, "Most efficient, modern, up-to-date airline facility in the world" needs to be challenged.

As you may recall, TWA moved into its new, most efficient, modern, up-to-date maintenance and overhaul base at Kansas City four years ago. This event was covered by American Aviation's Joseph S. Murphy in the May 7, 1956 issue, and was documented by pictures which could very well be used to support the NWA article.

In addition to other features, TWA's base incorporates the use of an "Oleum" redistillation system, 6,490 feet of automatic discharge conveyor systems for engine cylinders, parts and materials, 600

When & Where

OCTOBER

Oct. 3—IATA, production planning & control group, Zurich.
Oct. 3—IATA, interline reservations manual sub-group, Montreal.
Oct. 3-5—Air Traffic Control Assn. 5th annual meeting, Sheraton-Palace Hotel, San Francisco.
Oct. 3-5—Institute of Aeronautical Sciences, midwest meeting on air logistics, Tulsa, Okla.
Oct. 4—IATA, legal committee, Italy.
Oct. 4—IATA, FAL working group, Paris.
Oct. 4—New York State annual airport development and operations conference, Hotel Onondaga, Syracuse, N.Y.
Oct. 6-7-8—Airmail Pioneers, annual convention, El Cortez Hotel, San Diego, California.
Oct. 6-9—National Pilots Association, pilots' fly-in weekend, Western Hills Lodge, Wagoner, Okla.
Oct. 9-14—American Institute of Electrical Engineers, fall general meeting, Morrison Hotel, Chicago.
Oct. 10-14—Society of Automotive Engineers, national aeronautics meeting, Ambassador Hotel, New York.
Oct. 11-13—ATA, engineering and maintenance conference, Muehlebach Hotel, Kansas City, Mo.
Oct. 19-20-21—Southeastern Airport Manager's Association, Far Horizons Motel, Sarasota Bradenton, Florida.
Oct. 23-27—Airport Operators Council, mid-year meeting, Jack Tar Hotel, San Francisco.
Oct. 25-Nov. 21—ICAO, airworthiness committee, Montreal.
Oct. 24-26—IRE, professional group on aeronautical and navigational electronics, seventh east coast conference, Lord Baltimore Hotel, Baltimore, Md.
Oct. 25-27—ATA, non-destructive testing subcommittee meeting, Marriott Hotel, Washington, D.C.

NOVEMBER

Nov. 2-3-4—10th Aircraft Hydraulics Conference, Pick-Fort Shelby Hotel, Detroit, Mich.
Nov. 3-4—Northeast Chapter, American Association of Airport Executives, annual fall meeting, Sheraton Inn, Binghamton, N.Y.
Nov. 7—IATA, traffic conference 2 agency committee, Athens.
Nov. 15-17—Aviation Distributors & Manufacturers Assn., 36th meeting, Riviera Hotel, Palm Springs, Calif.
Nov. 17—Public Affairs Committee, ATA Conference Room, Washington, D.C.
Nov. 22—IATA, technical committee, Rio.
Nov. 28—IATA, 5th Public Relations Conference, Estoril, Portugal.

DECEMBER

Dec. 7—ATA, board of directors meeting, ATA conference room, Washington, D.C.
Dec. 8—ATA, membership meeting, Federal Room, Statler-Hilton Hotel, Washington, D.C.
Dec. 17—Wright Memorial Dinner, Sheraton Park Hotel, Washington, D.C.

PIONEERING IS OUR BUSINESS . . .

ONE
LIGHTWEIGHT OXYGEN REGULATOR SERVES 100 PASSENGERS

High Capacity Saves Weight on Canadair CL-44

Here's an automatic, continuous-flow Oxygen Regulator that weighs only *14 ounces* and controls *all* passenger oxygen supply outlets for up to 100 passengers! This new Bendix® Type 29215 Oxygen Regulator is now in use by Canadair on their new CL-44 Transport.

This compact Bendix regulator is the lightest weight oxygen regulator designed for use in transport aircraft. Installed in the oxygen supply system, it automatically regulates oxygen flow and pressure to the outlets, providing undiluted breathing oxygen through an altitude range of 0-41,000 feet. This lightweight regulator will operate with inlet pressures from 50 to 2000 psi.

Type 29215 Oxygen Regulator can also be used as a high flow pressure reducer to deliver fixed gauge pressure, preset from 5 to 100 psig. Type 29238 Oxygen Regulator (basically similar, but with different calibration and mounting plate) has recently been approved for installation in a major U.S. commercial jet transport.

For more information on this and other airborne oxygen equipment for military, commercial, and private aircraft, write today.

SPECIFICATIONS

Weight: 1 lb. max.

Flow range: 0-450 liters/minute at standard temperatures and pressure.

Temperature range: —65°F to + 160°F.

Outlet pressure tolerance: ± 2 psi throughout operating range.

Qualified engineers are invited to investigate our many job opportunities.

Pioneer-Central Division

HICKORY GROVE ROAD, DAVENPORT, IOWA

West Coast Sales and Service, Burbank, Calif.
Bendix International Division—205 E. 42nd St., New York, N. Y.
Aviation Electric Ltd., Montreal, Quebec, Canada

The Bendix Corporation

feet of drag line conveyor systems for engine teardown and buildup, five test cells (four piston, one jet), water softening plant, chemical waste disposal plant plus a pneumatic tube installation, comprised of 5,000 feet of tubing for instantaneous transmitting of documents to or from all major work centers. In our opinion, this facility has not as yet been surpassed or equaled.

J. E. WILLS, Director
Methods, Tooling and Equipment
Trans World Airlines, Inc.
Kansas City, Missouri

Editor's Note: *The lavish praise for the NWA base was not intended to slight such an excellent facility as the TWA base. NWA's facility includes all general offices in the same complex and the praise was intended for the overall unit.*

Marconi Dopplers Sprout, Too

To the Editor:

In the sixth paragraph of the article, "Bendix Eyes Sprouting Doppler Market" (*AIRLIFT*, Aug.), is the statement, "The major carriers have not yet made a major purchase—except for United's sampling—but Wolf is convinced the time for decision is ripe."

We refute this statement. In November of 1958 Pan American World Airways ordered Canadian Marconi Company's doppler and deliveries were made shortly afterwards. Following Pan American came orders from KLM, Varig, Irish International, Canadian Pacific, South African and only today (Aug. 31) we learn that Air France has specified Canadian Marconi Company's doppler for their jet fleet as well.

We would appreciate a correction to the above mentioned erroneous statement if at all possible.

G. A. SMART
Advertising and Sales
Promotion Co-ordinator
Canadian Marconi Co.
Montreal, Canada

Editor's Note: *Following is a complete list of Canadian Marconi doppler orders as supplied to us by Mr. Smart on Sept. 8. Pan American, 9; KLM, 16; Varig, 4; Irish International, 9; Canadian Pacific, 10; South African, 6; Air France, 20; Alitalia, 5.*

Two Paths to Solvency

To the Editor:

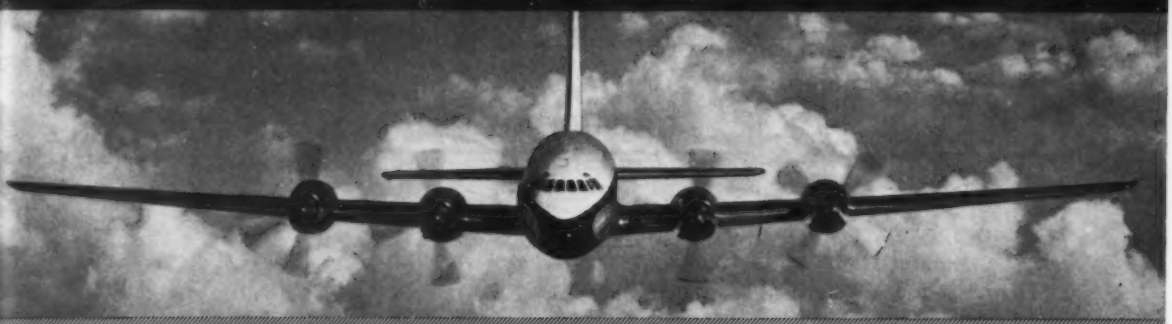
Re September 1960 *AIRLIFT* article "Riddle's Hewitt: Dynamo in Action": Could Hewitt's *Six Paths to Solvency* be better described in just two paths, i.e.,

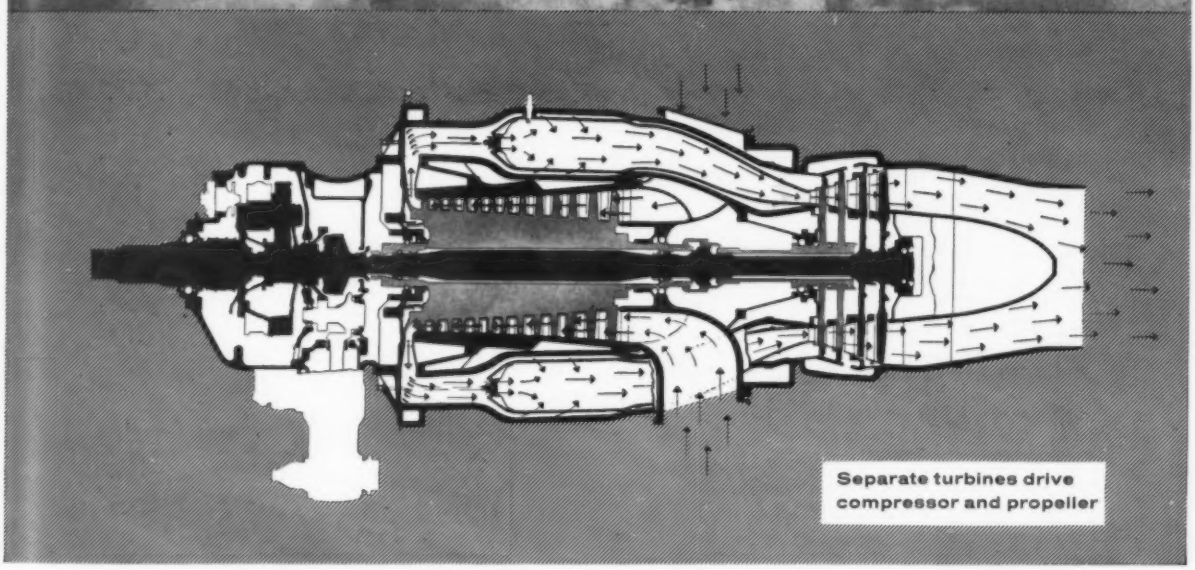
1. Secure a route certificate to carry cargo New York/Chicago to Miami/-Puerto Rico.

2. Forget about this route—secure MATS transatlantic contract, then also operate transatlantic charters in direct competition to route certificate holders across the Atlantic.

GORDON R. PARKINSON
Kansas City, Mo.

Proteus turboprop achieves 2,400-hours overhaul life– over 1,000,000 hours in service...





...ANOTHER ENGINEERING ADVANCE BY BRISTOL SIDDELEY

The Proteus 705 turboprop powers the Britannia 102 airliners which ply BOAC's arduous Commonwealth routes. It was recently announced that this 3,890-hp aero-engine has been cleared for an overhaul life of 2,400 hours! This very impressive figure has been reached in just over three years service—a rate of increase never before achieved by any other engine, piston or gas turbine. And Proteus engines have now logged over 1,000,000 flying hours with 13 airlines and RAF Transport Command—all over the world. During this time, Proteus development has continued and later versions deliver even more power for a lower specific fuel consumption.

But it is not only in the air that the Proteus has proved its success. For derivatives of this free-turbine engine, backed by great operational experience, are giving the same outstanding service as powerplants for fast patrol boats and for industrial electrical generators.

For further information, please write to Bristol Aero-Industries Limited, 200 International Aviation Building, Montreal 3, Canada. Tel: University 6-5471.

BRISTOL SIDDELEY ENGINES LIMITED

In H.F. Radio Equipment... Anything Over 15 lbs. is EXCESS BAGGAGE!

Certified to FAA TSO's C-31B and C-32B CATEGORY A and RTCA Standards FCC Type-Accepted Part 9 for Aviation, Part 8 for Marine.

- Powered by exclusive SunAir solid-state transistorized unit
- Improved etched circuit and hermetically sealed relays
- WEIGHS ONLY 15 POUNDS
- 22 Crystal-controlled channels—simplex or duplex operation
- 2,000 - 15,000 kcs.
- Ranges over 2,500 miles are common
- Size: ½ ATR

Model T-22-RA High Frequency Transceiver by SunAir — for Air Carrier, Military, Executive long range communications.

$2,395* COMPLETE with shock-mount, remote control head, full 44-crystal complement and power supply.

*Subject to Change. F.O.B. Ft. Lauderdale, Florida, U.S.A.

SUNAIR® ELECTRONICS, INC.

BROWARD COUNTY INTERNATIONAL AIRPORT • FT. LAUDERDALE, FLORIDA, U.S.A.
CABLE ADDRESS: SUNAIR

Recognized for reliability... throughout the world!

AIR TRANSPORT TRENDS

Equipment

Go-ahead on Boeing 727 short-medium range jet is near. Eastern signed conditional letter of intent for 40, United may soon follow with similar order. The 80 planes would involve more than $300 million. Boeing has said it will build 727 if two airlines sign up.

FAA

Pilot-FAA battle isn't over. Don't mistake present calm for peace. Reason: pilots have gone underground with their fight, after losing "press" in open warfare with Administrator Quesada. First indication is a detailed campaign by one ALPA local to flood Congress with complaints of dictatorial powers given Quesada in FAA Act. Document refers to Administrator as "Federal Chief of Aviation Police."

New Markets

"Air bus" idea is catching on. Eastern and Capital start this month, if CAB approves, expect no-frill service to open markets not tapped by first-class and coach. Features: $40 Pittsburgh-Miami fare, or 26% under daycoach, 15% less than nightcoach. Your ticket (sold in originating cities only) is your reservation, there's no check-in, tickets aren't refunded less than 24 hrs. before departure. Equipment is 95-seat Connies, 88-seat DC-6Bs. Ini Airlines, of Argentina, plans Buenos Aires-Miami air bus. Other U.S. trunks have plans.

Locals

Local airlines are in federal-state squeeze. Industry is watching closely, since test of CAB use-it-or-lose-it policy is involved. Bonanza got CAB okay to drop two sparse traffic points in Nevada, was told by state that service can't be abandoned without approval of public utilities commission. Frontier has similar situation in trying to drop Casper-Omaha route. Cases are in court. Locals fear other state commissions will increase activity.

Export Sales

U.S. export sales position is improving. Manufacturers and airlines can now look to Export-Import Bank to underwrite political risk guarantees on new and used transport sales to all free-world countries. New Ex-Im division is geared to insure transactions by individual application for terms up to five years. This puts U.S. on equal footing with Canada, Britain, Germany and France, all of whom have had similar risk protection agencies in the past.

Farnborough

Look for a change at Farnborough next year. Non-British suppliers may be admitted to the show for the first time. But it won't come without a fight—engine and accessory suppliers in favor, a handful of prime aircraft builders opposed. Probable result: controlled entry of non-British aircraft powered by British engines, making eligible such models as 707, DC-8, F-27, Caravelle, CL-44, Eland Convair. Major concession was made this year when an Auster was displayed with U.S.-built Continental engine. Past rules required removal of non-British engines.

IATA

World's airlines will step up enforcement activity. IATA is increasing number of enforcement officers from eight to 22 to make sure carriers abide by traffic conference rules. The 1961 enforcement budget is $372,600 against $265,400 in 1960. Maximum fine of $25,000 hasn't been increased.

Thor-Delta launches payload toward 900-mile orbit

At altitude, satellite is released, inflates to 100-ft. diameter in two seconds

"Project Echo" satellite in orbit, ready to reflect radio signals from NASA transmitters on earth

New plastic moon lets all our scientists share in satellite tests

Your voice may "echo" around the world as a result of this cooperative Space Age project . . .

"Project Echo," National Aeronautics and Space Administration's satellite launch, comes like a "windfall" research grant to scientists.

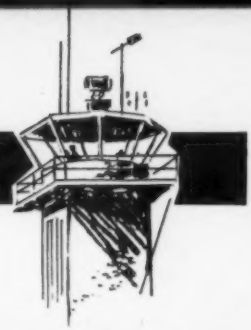
The aluminum-coated plastic sphere went into orbit folded inside the nose of a Douglas *Thor-Delta*. Researchers have been invited to further their own experiments with the aid of radio signals bounced off the satellite by NASA transmitters. Data on the orbit and signals is being widely publicized by NASA in the belief that "cooperative tests" can result in new civilian space research advances.

Such satellites may one day be used as global relay stations for radio, voice and TV signals. While this system is not a reality, the booster that can put it up already is. Douglas *Thor* has proved itself successful in 87% of its space firings. This dependable launcher is another product of the imagination, experience and skill Douglas has gained in nearly 20 years of missile development.

DOUGLAS

MISSILE AND SPACE SYSTEMS • MILITARY AIRCRAFT • DC-8 JETLINERS • TRANSPORT AIRCRAFT • AIRCOMB® • GROUND SUPPORT EQUIPMENT • ANTI-SUBMARINE WARNING SYSTEMS

INDUSTRY AT A GLANCE



EQUIPMENT

Used transport sales take over, a sign the lull may be ending. Eastern Air Lines sells its fleet of 15 Lockheed 749s to Transit Equipment Co., New York, for delivery before January 1. Argentine airline Ini & Compania buys a DC-6 from American Airlines to inaugurate a 90-seat airbus service from Buenos Aires to Miami via Lima and Panama City.

Small deals flourish. Transatlantica Argentina, a new airline, inaugurates Buenos Aires-Europe service with two Lockheed 1649s purchased from TWA. Continental Air Lines cuts its Viscount fleet by two, selling one to a corporation, the other to an undisclosed foreign airline. L. B. Smith Aircraft Corp., Miami, sells eight C-46s to Brazil's NAB airline, will convert them to Super C-46s for domestic Brazilian operations.

New plane orders are scarce. The promise of a rash of short/medium-range jet buying is slow materializing and now may not break until November or December. Only firm new commitments are Quebecair's purchase of two "demonstrator" Eland Convairs from Canadair and Eastern's exchange of delivery position with Mexico's Aeronaves on one DC-8. Deal will accelerate Aeronaves DC-8 introduction by 18 months.

Military holds promise. Best immediate prospect for transport builders is an expected $175 million order for big jets to modernize MATS. At stake are 50 aircraft, 15 this fiscal year and 35 next. Main contenders are Boeing with C-135H, Douglas with a militarized DC-8 and Convair with version of the 600.

New models show up. Boeing is offering a 707-320D, a turbofan powered version of the Intercontinental series, for delivery in 1962-63. Cabin capacity would increase 10 to 12 passengers by "stretching" fuselage. Japan's Nihon Airplane Mfg. Co. Ltd. will build 150 YS-11 twin turboprops in the 52-60 passenger class. Powerplants will be Rolls-Royce Darts with production slated for 1963 to 1970 period.

FINANCE

Ex-Im Bank is active, turning loose $38.2 million in loans to four international airlines for purchase of Boeing jets. South African Airways gets $16 million for three 707s; Ethiopian Airlines $9.2 million for two 720Bs; El Al Israel $8.9 million for two 707s and Air India $4.1 million for a single 707.

CHA asks loan guarantee. Chicago Helicopter Airways asks CAB to guarantee 90% of a $3,250,000 loan to buy Sikorsky S-61L turbine 'copters. Unit price of S-61 including engines is pegged at $674,000 and that of each spare GE T58 at $67,000.

Financial flameout ahead? Eastern Air Lines' president Malcolm MacIntyre warns that airlines may become stalled half way through their transition to jets if they are not permitted to earn sufficient profit to attract equity financing. He says that too much competition under a price ceiling that was too low has so inhibited profits that private industry may not be able to finance the capital necessary to complete the transition to jets.

HELICOPTERS/VTOL

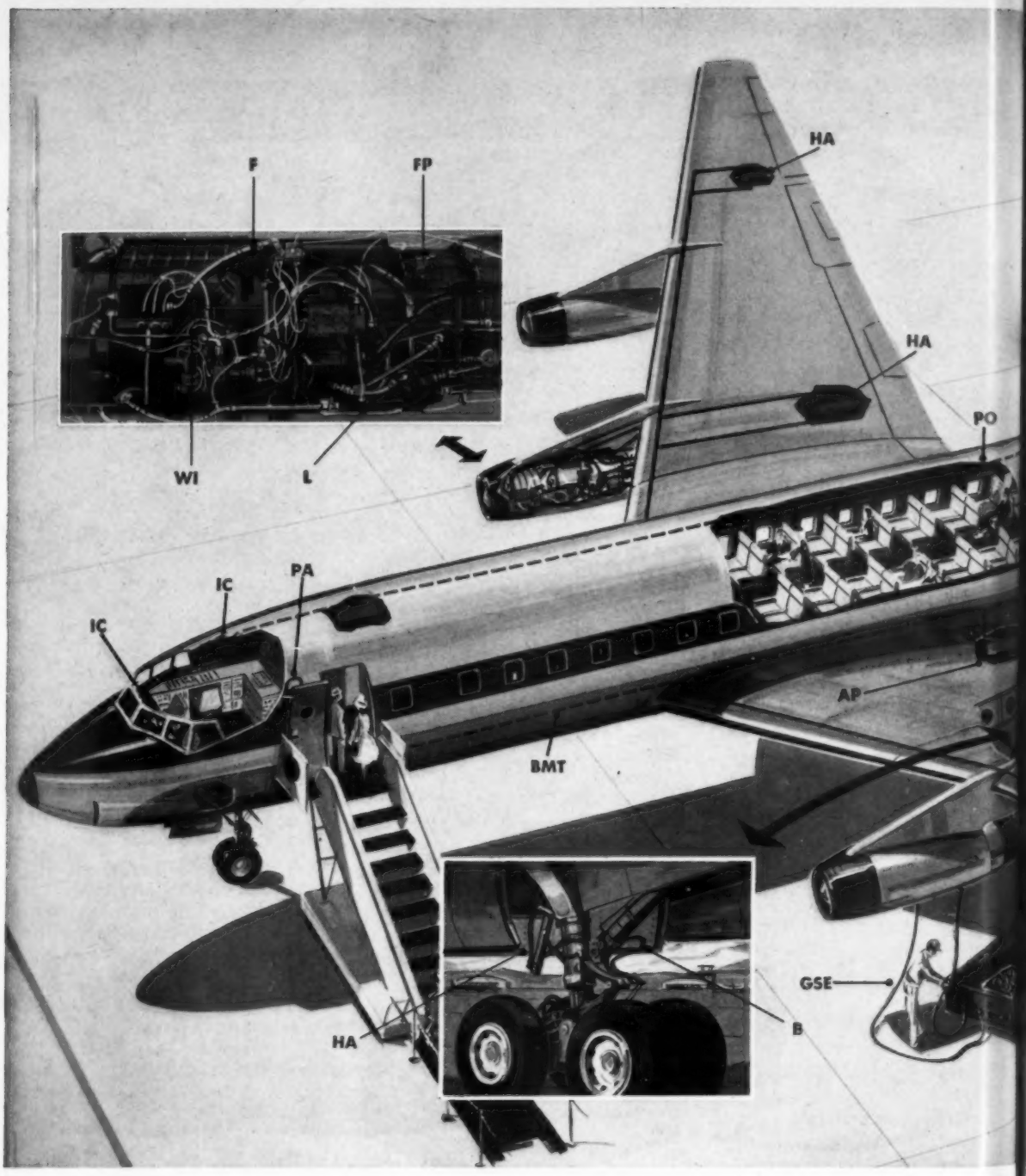
S-62 is here. First airline turbine helicopter is delivered to Los Angeles Airways and probably will start service late this month. Pilgrim Helicopter Service also expects to buy an S-62, plans to inaugurate 12-trip-a-day service between Washington, D.C. and Balitmore's Friendship Airport before the end of the year.

Heliport on floats. Australian government authorizes construction of floating heliport on River Yarra about one-half mile from downtown Melbourne. Ansett-ANA and Trans Australian Airlines will use it for airport-city shuttle services.

Go-ahead signal for cranes. Sikorsky Aircraft will build three S-64 flying cranes, two for NATO and one demonstrator. Powerplants will be two P&W JTFD12s, a modification of the 3,000 lb. thrust JT12 straight jet with a free turbine adapter section to supply shaft power.

Bell enters a civil turbine. New commercial 'copter entry by Bell Aircraft is 9-passenger Model 204B, a derivative of the Army HU-1B powered by a single Lycoming T53-9. Price is about $285,000, delivery late 1961. Bell pegs top speed at 147 mph, hover ceiling at 17,000 ft. and range at 260 miles.

AF backs fan-wing VTOL. USAF awards Vanguard Air & Marine Corp., Paoli, Pa. funds to continue development of its Model 2C fan-wing VTOL using a Lycoming T53 powerplant . . . Former Rohr Aircraft Corp. engineer Ilow C. Limb forms Gyrotor Co., San Diego, and expects to enter helicopter production with a new rotor system concept.



Why the airlines are turning to F

Complete reliability is the reason. The plain fact is that more and more airlines, faced with problems of reliability, performance, and maintenance of plumbing systems, are retrofitting with Resistoflex hose assemblies of Fluoroflex®-T!

In fuel, hydraulic, lubrication, water injection, oxygen and other special service lines, the increased maintenance and replacement demands of higher temperatures, impulse pressures, and corrosive solvents can be met most economically with Resistoflex's Fluoroflex-T swaged-fitting hose assemblies.

Fluoroflex-T, Resistoflex's proprietary Teflon® product, is completely non-aging, completely unaffected by temperatures up to 450°F. The SWAGED FITTING, pioneered and developed by Resistoflex, recently received WADC recommendation as standard for Air Force field assembly with tetrafluoroethylene hose.

What's more, Resistoflex's recently-developed portable swaging machine, which produces factory-quality assemblies in

KEY TO FLUOROFLEX-T HOSE APPLICATIONS	
Fuel Lines	F
Lubrication Lines	L
Hydraulic Actuator Lines	HA
Pneumatic Actuator Lines	PA
Instrument Control Lines	IC
Brake Lines	B
Fireproof Lines	FP
Auxiliary Power Lines	AP
Water Injection Lines	WI
Passenger Oxygen Lines	PO
Ground Support Eqpt. Lines (With Spring Guard)	GSE
Bent Metal Tubing	BMT

FLUOROFLEX-T

the field, further extends the maintenance economies of Resistoflex hose assemblies. More than *6 million* Resistoflex swaged fittings have been used in Fluoroflex-T assemblies with never a blow-off in service.

So, for maximum performance, long life, and complete dependability—*plus* the resultant economies of minimum operational delays and maintenance—retrofit with Fluoroflex-T. Write for more information today.

ORIGINATORS OF FLUOROCARBON HOSE ASSEMBLIES

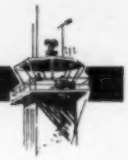
RESISTOFLEX CORPORATION

COMPONENTS FOR HIGH-TEMPERATURE AND CORROSIVE SERVICES

Plants in Roseland, N. J. • Anaheim, Calif. • Dallas, Tex.
Sales Offices in major cities

*Fluoroflex is a Resistoflex trademark, reg. U. S. Pat. Off.
Teflon is Du Pont's trademark for TFE fluorocarbon resins.

INDUSTRY AT A GLANCE



SUPERSONICS

AF study gets underway. Four supersonic transport study contracts are expected to be awarded early in November for four-to-six month study leading to selection of builder for two U.S. prototypes. Main contenders are Boeing, Convair, Douglas, Lockheed and, a newcomer to transports, North American. Contracts will be for $250,000 each, possibly less.

SAFETY

Electra evacuation astounds. The landing accident of a Lockheed Electra at New York's LaGuardia field achieved something of a safety record as 75 passengers reportedly evacuated the overturned fuselage in 80 seconds. The aircraft hit LaGuardia's 8-foot bay dike during a gusty approach. CAB is investigating.

Russia grounds a turboprop. Inflight explosion of Ilyushin Il-18 turboprop near Kiev during Cairo to Moscow flight has brought Soviet grounding of the entire new fleet of Moskvas for special inspection. Shortly before the grounding, Ghana Airways had placed an order for four of the Red turboprops.

AIRCRAFT SERVICES

PAC to overhaul Tyne. Flying Tiger Line is all set for overhaul of its Rolls-Royce Tynes used on Canadair CL-44 following $6 million contract signed with Pacific Airmotive, Burbank. Deal involves 300 Tynes over four-year period starting July 1, 1961 and calls for 21-day overhaul cycle.

ATC/COMM/NAVAIDS

"Poor Man's" approach lights. A Sylvania-built, small-airport approach light system is being installed at FAA's Atlantic City center in November for evaluation. Estimated to cost $22,000 instead of $100,000 (pricetag for full-scale installations) the new system covers 1,500 ft. of final approach and uses standard instead of high-intensity lights. Otherwise, the layout conforms to standards for large airports.

Pictorial display on test. FAA is evaluating three cockpit pictorial displays developed by ACF Industries and IT&T under contracts totaling $176,-195. FAA expects commercial versions operating from VOR data would cost about $1,000, measure 8 x 8 x 3 in. and weight four lbs.

LABOR

Dissension grows in ALPA's ranks. Nine-year reign of president C. N. Sayen is definitely threatened. There's substantial support for nomination of former CAB chairman James M. Landis when ALPA's Miami convention opens Nov. 14. Discontent grows out of union's handling of age-60 fight, third seat controversy with FAA, Southern Airways strike.

Landis, now 61, is stumping hard, promises to give up law practice if elected, wants to operate from Washington instead of Chicago. Before the convention, he'll talk to pilot groups in Miami, Seattle, San Francisco, Los Angeles, Dallas, will pledge a "stronger, progressive, reinvigorated" ALPA. Two Eastern Air Lines councils voted support. Landis isn't a pilot, must be backed by two-thirds of union's 300-member board of directors to be nominated.

ALPA loses another round. As Southern Airways, whose pilots struck 17 weeks ago, adds schedules and nears 100% operation with non-union crews, ALPA ordered its members on 13 other airlines to observe Southern picket lines. But a U.S. District Court judge issued an injunction, indefinitely preventing the boycott. ALPA will appeal.

MERGERS

Merger speedup. Legal skirmishing hasn't been successful in enlarging CAB's United-Capital merger case. Board has refused requests of trunks and locals to include issues of suspending part or all of Capital's routes or transferring them to other carriers prior to the merger.

CAB says its policy is to speed merger proposals when possible, claims that broadening the case "might well result in a proceeding involving remaking of the airline map east of the Mississippi River." Member Alan Boyd disagrees, feels that case should cover the route question.

Introducing other issues might well have torpedoed the merger. United, which sets deadline of Feb. 1, 1961 for approval, threatened to call the deal off, says it isn't interested in acquiring Capital's system "with a major part of the torso missing."

MANAGEMENT

Presidential search. Howard Hughes is looking to a management consulting firm to find TWA its fourth president in five years. Decision seemed near at presstime. Firm offers five-year contract with salary for entire period in escrow (former president Charles Thomas received $91,249 salary and expenses). Reported a frontrunner: Fred M. Glass, senior v.p. and board chairman of Empire State Building, formerly with American, Capital, Air Cargo Inc., Port of New York Authority.

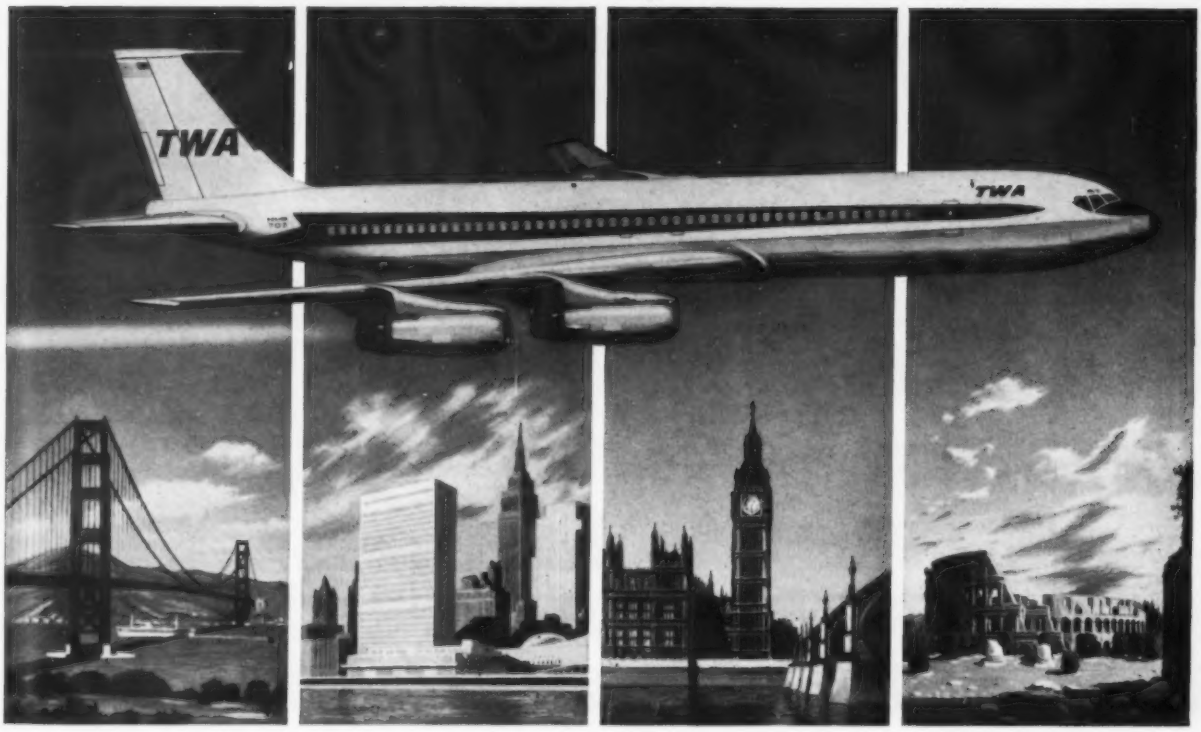
LOCALS

Big route awards strengthen Lake Central, push it up in local service rankings. In Great Lakes case, CAB extended LCA (12th among 13 locals in passenger-miles) to 15 new cities, increasing total to 49 in eight states and District of Columbia.

Principal awards: Detroit-Pittsburgh, Charleston-Pittsburgh, Columbus, Ohio, to Washington/Baltimore, Cincinnati-Washington/Baltimore, Grand Rapids-Columbus, Erie-Pittsburgh, all via intermediates. Two new segments go to North Central: Detroit-Cleveland, Sault Ste. Marie to Chicago and Detroit.

TWA THE SuperJet AIRLINE

is the only airline flying across the United States... across the Atlantic to Europe...and across Europe



TWA JETS now serve LOS ANGELES · SAN FRANCISCO
KANSAS CITY · ST. LOUIS · CHICAGO · DETROIT · NEW YORK · BOSTON
PITTSBURGH · PHILADELPHIA · WASHINGTON–BALTIMORE · MIAMI
LONDON · PARIS · ROME · LISBON · FRANKFURT · MADRID · ATHENS

FASTEST COAST-TO-COAST

Call your travel agent or nearest TWA office

TWA

*THE SUPERJET AIRLINE**

Call your travel agent or nearest TWA office

The only airline flying across the United States in 4 hrs. and 30 mins.

*TWA THE SUPERJET AIRLINE is a service mark owned exclusively by Trans World Airlines, Inc.

Convair 880's like the "Delta Queen" are now setting new records on Delta's scheduled flights.

Flying time between New York and New Orleans for example, is only 2 hours, 10 minutes.

TEXACO LUBRICATES WORLD'S FASTEST JETLINER

G-E Powered Convair 880 "Delta Queen" sets new coast-to-coast speed record...averages 667 mph.*

Four mighty G-E CJ805-3 engines are a big reason for the Convair 880's incredible speed. These engines are so powerful, that even with a full load, the 880 can operate in and out of most airports accommodating today's piston engine aircraft.

General Electric used Texaco Synthetic Aircraft Turbine Oil 15 lubricant in the development of the CJ805-3. Now SATO 15 keeps it operating at peak efficiency in regular flight.

Texaco Synthetic Aircraft Turbine Oil 15 is just one of a complete line of fine lubricants and fuels which Texaco supplies to the aviation industry. For complete data, contact any one of the more than 2,300 Texaco Distributing Plants, or write:

*Actual flight time between San Diego and Miami: 3 hours, 31 minutes, 54 seconds. Average speed: 667.95 mph.

Texaco Inc., *Aviation Sales Department,* 135 East 42nd Street, New York 17, N. Y.

Tune In: Texaco Huntley-Brinkley Report, Mon. Through Fri.-NBC-TV

TEXACO
LUBRICANTS AND FUELS

FOR PURE JET, TURBO-PROP AND PISTON-ENGINE AIRCRAFT

Did Anyone Gain By CAB Juggling?

Has CAB route shuffling really strengthened the regionals, or merely weakened the big trunks?

By JOSEPH S. MURPHY

THE CIVIL AERONAUTICS BOARD is at the crossroads of policy in awarding new air routes.

Within the next three months, a "new" CAB will decide which airlines are to get the awards in two gigantic route scrambles—the Southern Transcontinental Case and the Transpacific Case.

Three of its members, a majority, have had little or no experience in route decisions. One of the cases at hand, the Southern Transcontinental, stands as the last of the major route hearings in a series started five years ago to "strengthen" the smaller trunk airlines. This was the policy set by a previous Board, but not necessarily one that the present CAB will follow.

There are two sharply conflicting paths at hand. As one alternative, CAB could yield to criticism of over-competition on present routes and reverse the recommendations of its examiners in their furtherance of past policy. Or it could heed the clamor for new route awards so prolifically displayed by the 18-airline participation in the two pending cases.

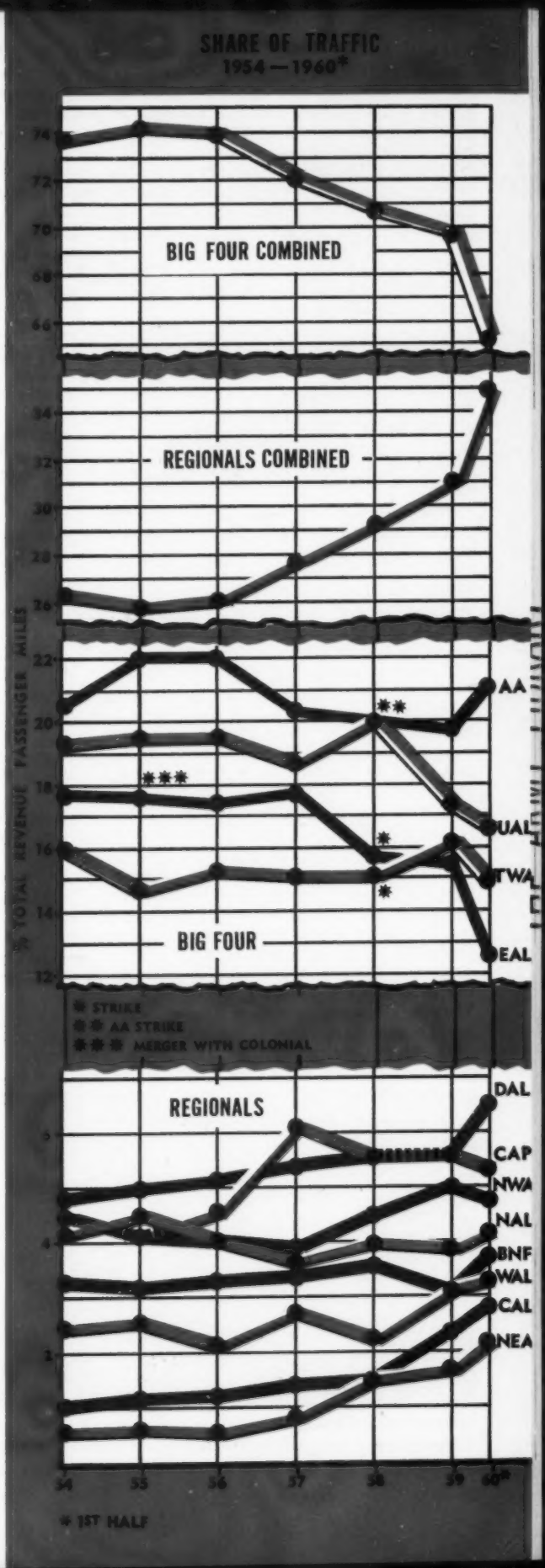
One factor certain to influence this new CAB will be its appraisal of the results of past route policies. Has the flurry of awards since 1955 actually strengthened the regionals? Has it, instead, merely weakened the larger trunks? Or, perhaps, is the result a mixture of both?

Trunks drop 9% since '54

In 1954, on the eve of the new route splurge, the so-called "Big Four" airlines (American, Eastern, TWA and United) held 74% of the total revenue passenger miles flown by the domestic trunk industry. By 1957 this dipped to 72%, fell to 70.8% in 1958, 69% in 1959 and plunged to 65% for the first six months of this year.

Of the big trunks, American today accounts for 21% of all trunk traffic, down slightly from a high of 22% enjoyed in the 1955-56 period. TWA similarly was holding its own at 16.3% in 1959 compared to 16% in 1954, although the first six months of 1960 saw a drop to 14.95%.

With Eastern and United, it's a different story. EAL accounted for 17.9% of all trunk traffic in 1954 (including



IMPACT OF NEW ROUTE AWARDS is most evident for Northeast and Continental, according to traffic curves (right) plotted for 1954 through 1960 first half. Graph shows percentage of total trunk traffic realized by individual airlines.

Colonial Airlines traffic) but dropped to 15.6% by 1959 and skidded further to 12.4% in the 1960 first half. Pilot troubles and a capacity cutback helped slice EAL's share in this period. United similarly has seen its portion of the traffic pie cut from about 19.5% in 1955-56 to 16.6% in 1960 through June.

How have the regionals fared? An analysis by *AIRLIFT* of their awards in the various route cases and the effects on their share of the traffic pie shows these results:

Braniff—Got its big award in the extension to Washington and New York in 1955 via the Southwest-Northeast Case. But its traffic has held about even, 3.23% in '54, 3.64% in 1960 thus far. A dip to 3.18% in '59 presumably reflects early jet competition.

Capital—Was awarded New York-Chicago without earlier restrictions in 1955, New Orleans in Southwest-Northeast Case (1955), Cleveland and Buffalo/Pittsburgh-Miami in Great Lakes-Florida Case (1958) and Minneapolis in Chicago-Twin Cities Case (1959). Capital rose sharply from 4.64% of all trunk traffic in 1954 on the crest of these awards and Viscount introduction to a peak of 6.1% in 1957. But it has since declined gradually to 5.3% this year.

Continental—Denver Case (1955) brought Chicago-Los Angeles authority and this long-haul segment plus an early start with jets has boosted CAL's share from only 1% in '54 to 3% in the first half of 1960.

Delta—Received its only major award via an extension to Washington and New York in Southwest-Northeast Case (1955) and has steadily increased its share from 4.8% in '54 to take over the leadership among regionals at 6.43% in the first six months of 1960.

National—The new route "orphan" among regionals, received no awards although it did receive additional competition from the entry granted Northeast in the New York-Florida market. NAL, however, has held its own at about 4% of the total trunk traffic, actually 4.2% in the 1954 and 4.1% for the first half of '60.

Northeast—Its one big award, a route to Miami, came in the New York-Florida Case (1956). From 0.61% in 1954, NEA has improved its lot to 2.1% for the first half of 1960.

Northwest—Was "strengthened" in the New York-Chicago Case (1955) and Great Lakes-Florida Case (1958), but the addition of DC-7s to its fleet during 1957 apparently has had more pronounced effect than the route grants. From 4.57% in 1954 it dropped to 3.88% in '57, then recovered to 4.95% in 1959. The Electra slowdown dropped this back to 4.8% this year.

Western—Received awards in Denver Service Case (1955) and Phoenix Case (1957), but major strikes in 1956 and 1958 sharply cut its share of traffic. WAL, however, has climbed from 2.4% in 1954 to 3.28% in the 1960 first half.

In virtually all of these route cases, one or more of the "Big Four" received new route authorizations. TWA, for example, received Denver in the Denver Service Case (1955), new authority east-west at Cleveland in the Reopened Milwaukee-Chicago-New York Restriction Case (1955), New York-Washington in the Southwest-Northeast Case (1955) and St. Louis-Miami in the St. Louis-Southeast Case.

United and Eastern fare worse

American's two big awards, both involving San Francisco, came via elimination of restrictions between Chicago and San Francisco in the Denver Case (1955) and New York-San Francisco nonstop in the New York-San Francisco Non-stop Case (1959). It also received Houston-Pittsburgh authority in the Southwest-Northeast Case.

United in this period received no major awards although it was allowed Portland/Seattle-to-Chicago Non-stop authority via the Portland/Seattle UAL Restriction Case, Kansas City in the Denver Case (1955) and New York-Washington in the New York-Florida Case (1956).

Eastern, which drew a blank in major awards, was the hardest hit of the "Big Four" with new competition from the route grants. It received competition from Northeast in the N.Y.-Florida Case, from Capital in the Great Lakes Case (Cleveland and Buffalo/Pittsburgh-Miami), from Northwest (Chicago-Miami) in the same case and from TWA (St. Louis-Miami) in the St. Louis-Southeast Case. Its only tangible award was Minneapolis with longhaul restrictions in the Chicago-Twin Cities Case.

Has the CAB strengthened the regionals? A shift of almost 9% of the traffic away from the "Big Four" would indicate so. But a closer look at the records of the individual carriers introduces some doubt.

Obviously Continental, Delta and Northeast have been nourished with new routes and the results show it. In fact, their combined increase of 5% of the total trunk traffic represents 60% of the gains realized by all of the regionals. Capital, Northwest, National, Braniff and Western, however, have less to show for their shares, if any, of the route handouts.

Mergers, another current CAB topic, would alter the trunk/regional traffic split quite dramatically, the *AIRLIFT* study shows. Based on the first six months of 1960, the United-Capital combine would account for 21.9% of trunk industry traffic, ahead of American's 21.1%. A TWA-Northeast merger would raise its share to 17%, only slightly better than TWA enjoyed on its own in 1959.

Together, the two mergers would drive the new "Big Four" slice of the traffic pie up to 72.4%, only about 1.5% shy of the portion it held in 1954, before the CAB began its strengthening process for the regionals. ■

HERE'S THE BOARD now facing major route and policy decisions as seen by those testifying before it. (L to R) Maj. Gen J. S. Bragdon (Ret.); Vice chairman Chan Gurney; Chairman Whitney Gillilland; G. Joseph Minetti and Alan S. Boyd. (Exclusive Airlift Photo.)

BRANCKER

IATA 'Closed Club' Faces Turbulent Future

By ERIC BRAMLEY

HILDRED

STORMY DAYS MAY BE AHEAD for the International Air Transport Association.

Whether the 89-member organization is adequately representing the interests of both large and small carriers is a big question. Increasingly, smaller members say the answer is no. There's growing resentment among them over what they call the "closed club" operation of director general Sir William Hildred and the executive committee.

IATA's annual meeting usually is a cut-and-dried affair liberally sprinkled with social functions. Touchy problems seldom are discussed. But this was not the case at the session just ended in Copenhagen.

Delegates wanted to know why John Brancker was fired, why nominations aren't accepted from the floor for executive committee membership, why manufacturers can't attend IATA meetings, why the executive committee didn't hold a hearing before ruling that all-cargo lines can't vote on passenger matters. One line threatened to resign unless a better job is done of enforcing South American fares.

All these hot ones were successfully fielded by Hildred and the executive committee. But the storm warnings are up.

'Brancker Affair' lights fireworks

Touching off hot controversy was the "Brancker affair." Why had Hildred insisted that the executive committee back his discharge of Brancker as traffic director?

Leading the questioners were outspoken Max Stuart-Shaw, of Central African Airways; Michel de Villeneuve, of Air France, and Victor Harrell, Ethiopian Airlines. They were told the matter had been acted upon by the executive committee and was not a proper subject for discussion. Also, that the head of an organization must have the right to handle his own staff members.

The matter was not raised again. Sometime in the future the executive committee will name a new traffic director, subject to confirmation by the annual meeting. Meanwhile, Hildred will handle the traffic duties.

Brancker has strong supporters. There are others, probably in the minority, who do not regret his departure. But even nonsupporters deplore the firing tactics.

In an unusual procedure, IATA's executive committee nominates it own members and the annual meeting gives routine approval. This year, the process was questioned by carriers who feel the group is thus limited to larger airlines or companies they control. They also claim that other important committees are composed largely of representatives of the same carriers.

When delegates requested that nominations be accepted from the floor, they were told to submit them by letter before the next annual meeting.

The edict that manufacturers shall not be present around IATA meetings drew criticism from carriers who say they use the annual gatherings to obtain information on new aircraft developments. A show of hands finally was permitted and unofficial reports were that the count was 22 in favor of manufacturers, 19 against, nine abstaining. But this is not to be binding on the executive committee, which is rumored to be standing by its guns.

Resignation threat came from Panair do Brasil president Manuel Guimaraes, who said his directors feel it would be preferable to quit IATA if the organization cannot stop violations of fare levels.

Richard Jackson, Seaboard & Western's new board chairman and general manager, sharply criticized the ruling that cargo lines cannot vote on passenger matters. This, he said, is a warning to others, particularly smaller members, "of the possibility of imposition of voting restrictions . . . for arbitrary and unexplained reasons without a hearing . . ."

Jackson's persistence won him an unprecedented meeting with the committee, but only on condition that he not discuss the voting problem—the very point at issue. He recommended to the committee that cargo be given increased stature in IATA and suggested appointment of a group to study whether voting methods should be changed.

The "revolt" on these issues, while unsuccessful, promises to make next year's Sydney meeting interesting. ■

How Brancker Was Fired

Three months ago, IATA director general Sir William Hildred pressured the executive committee into backing his dismissal of John Brancker as traffic director. He then asked Brancker for his resignation. Brancker, in a three-page letter, asked Hildred why he wanted him to quit, and refused to invent a phony reason for leaving.

His answer from Hildred, addressed to "Dear Mr. Brancker," was: "It is deeply regretted that you are apparently unwilling to tender your resignation as traffic director of IATA. You impose upon me the painful duty of now formally notifying you of the termination of your employment." He was told he will receive one year's salary, reported to be $20,000.

FLIGHT PLANNING

Here's a close look at three new techniques for more economic flight management: (1) Computer planning; (2) the NAV system and (3) the Programmed Flight Planner.

Flight Planning by Computer

THE MOST SIGNIFICANT advancement in airline flight planning emerged with the inaugural of Douglas DC-8 jet operations by United Air Lines.

UAL's was the giant step. It moved from manual to computer flight planning to gain the ultimate in efficiency from its big jets. Using the G-15 digital computer developed by Bendix Corp.'s Computer Division, United has slashed the time required for flight planning from one hour to a matter of a few minutes.

The operation has been so successful that at least two other carriers, American and Japan Air Lines, will adopt the G-15 in the near future.

As early as 1957, "paper jet" operations by UAL's Denver operations team of M. E. Balzer, J. E. Sorenson and W. B. Beckwith brought out the need for a much more critical appraisal of upper level winds and temperatures in jet flight planning. Piston practices would not suffice. The sensitivity of the jet to temperature and higher cost of operation dictated a change.

Operation of piston types such as the DC-7 along a minimum time track also produced a minimum cost track. Since the effects of both altitude and temperature on the DC-7 would vary costs to a lesser degree, the forecast wind field was the prime weather factor to consider for best economy operation.

The DC-8 is different. The minimum-time track between any two points is not the minimum-cost track. Speed and fuel flow decrease as operating altitude increases and the en-route temperature strongly influences operating costs.

Jet variables are complex

Minimum fuel flow, as low as 12,000 lbs. per hour, is found at the higher altitudes (36,000 to 40,000 ft.) but to attain it might mean a penalty in time. Operating westbound, the optimum altitude is a function of vertical wind shear and is evaluated in terms of a critical figure. Eastbound, best operations are at the altitude offering the most wind assist consistent with best airspeeds and fuel burnout.

-1379 1/5 a 51.15000
1380 scf690500 s

(FLT. NO.) (DATE) (PLANE NO.)
867.00 3.30 2100.00

12.00
5.00 } (RESERVE FUEL)
.00

(ZFW) 20.00 (LDG. WT.) (MAIN)
(MATOWN) 148.89 168.89 190.50

6038.70 (JET ROUTE DESIG)

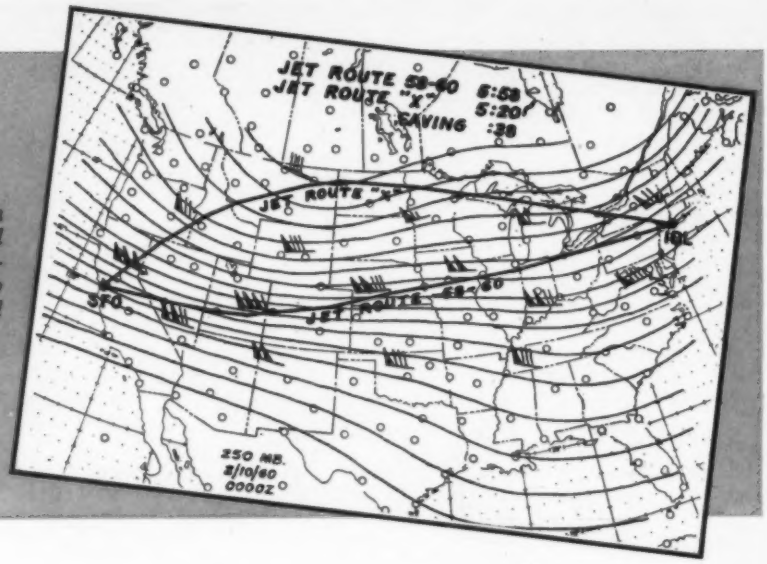
	(MILES)	(ALT)	(TEMP)	(TAS)	(WIND DIR)	(WIND SPEED)	(COMP)	(GS)
(SFO)	494.00	109.77	.00	5.00	.00	250.00	40.00	31.34	.00
(PDX)	33	219.23	35.00	3.65	465.57	250.00	73.00	75.77	392.72
(RCA)	.11	29.27	35.00	3.65	466.11	.00	.00	77.75	388.35
(ECA)	.22	95.72	31.00	1.57	472.93	.00	.00	72.08	407.85
(MLF)	475.00	400.00	31.00	1.57	475.30	270.00	50.00	79.63	388.46
(ZEN)	488.00	425.00	31.00	2.57	470.23	290.00	115.00	94.94	375.29
(OMA)	553.00	228.09	31.00	5.57	463.33	300.00	130.00	112.49	350.93
(RCA)	.11	130.91	31.00	7.01	457.82	.00	.00	43.50	414.3

(TOT. DIST.) (TOT. TIME) (TOT BO)
1630.00 4.30 82.64
231.53 9.00 33.70
(TOWN) (CLIMB TEMP) (CLIMB WIND)

25% CAT RCA-OMA

This partial text of flight planning information shows how computer prints data, ready for transmission.

BIGGER SAVINGS from computer planning will come as ATC permits freedom of routes according to wind pattern, as illustrated here.



In a nutshell, the decision on the best flight plan for a jet is complex, one that has to take into account weather, operating costs and schedule reliability. And these elements are not fixed at any one point. They are dependent not only upon the weather, but also the varying weights of the aircraft and payload added at the originating point. Add to this already complex situation the further complication of a choice of optimum flight plan from two or three alternatives.

UAL's study showed that it is possible to "hand plan" jet flights using voluminous tables and graphs and come up with answers on costs, time and fuel needs that would not be more than a few percentage points off. These errors, however, would be too course to be tolerated and eventually would accumulate into sizeable figures that could mean the difference between profit and loss.

To avoid just such a situation at United, Balzer, Sorenson and Beckwith turned to computer planning and the Bendix G-15. It was not a simple changeover. New methods of preparing weather and temperature forecast parameters had to be developed. UAL come up with an equation by which the computer could determine the ground speed at normal cruise thrust.

In preparing forecast weather data for input to the computer, United makes use of current and prognostic charts transmitted over both the national and high altitude facsimile circuits. If their transmission is delayed beyond operational deadlines, UAL comes up with its own upper air analysis. It also prepares its own 250- and 400-millibar charts since these are not analyzed for facsimile transmission.

Simplified forecasting a necessity

For operation under a constant altitude philosophy, preparation of forecast weather would be relatively simple. However, using the optimum flight planning philosophy wherein the computer automatically arrives at best track and altitudes for a given load, wind and temperature situation, forecast data has to cover geographically all possible tracks and altitudes from 25,000 to 40,000 ft.

Preparation of prognostic charts to meet such a demand would outrun the capabilities even of a well-staffed weather center. To simplify this workload, United's experimental work shows that it can get good results by keeping track of wind and temperature at three standard levels. It then develops lapse-rate values for temperature and shear values for winds to enable the computer to determine optimum flight track. One very useful tool used by United is a tropopause height-temperature chart whose principal role is in lapse-rate forecasting.

Actual input of data to the computer is handled by a meteorology clerk who works from a data sheet prepared by forecasters. The combination of weather and operational data fed into the G-15, plus the permanently stored data on aircraft and routes, enables it to turn out flight plans in a fraction of the time required for manual planning.

COMPUTER INPUT DATA

- Flight Number
- Date
- Aircraft Type and Number
- • Route Number
- Zero Fuel Weight
- • Required Reserve Fuel
- • Allowable Takeoff Weight
- • Wind Direction
- • Wind Speed (Shear)
- • Air Temperature (Lapse Rate)

} Forecast for climb, cruise and descent

- Maximum Allowable Landing Gross Weight

COMPUTER STORAGE DATA

- Aircraft Flight Characteristics
- Airspeed: Mach Number; Altitude; Aircraft Weight; Ambient Air Temperature; Climb, Cruise, Descent
- Route Data: Segments: Head, Distance; FAA Restrictions
- Climb Time and Distance
- Cruise Time
- Descent Time and Distance
- Temperature and Altitude Limits to Climb
- Fuel Burnout

VARIABLE INFORMATION on aircraft and weather is fed into computer, aircraft performance and route data is stored.

INVENTOR OF the NAV planner, H. E. "Van" Benham illustrates flight planning curves used with his system.

Despite the route and altitude limitations being imposed by FAA, UAL is showing tangible reductions in operating costs. For example, a nonstop DC-8 flight (New York to Los Angeles) loaded to 231,000 lbs. gross would take 4 hrs. and 40 minutes operating a constant altitude plan at 29,000 ft. and would burn 69,000 lbs. of kerosene.

The optimum plan for this same trip stepping once to an altitude of 33,000 ft. requires one additional minute of flight time but results in 4,400 lbs. less fuel burnout. Take-off gross weight becomes 3,700 lbs. less and savings for this one trip are $95! Multiply this by the 50 or more long-haul trips flown daily by a large airline and the savings exceed $1 million a year.

As more jet airways become available from FAA, UAL expects the savings to be realized from computer planning to grow even higher.

For the time being, however, use of the computer has made it clear that the actual flight planning of the operation is in the hands of the meteorologist working with a long-range dispatcher. But this, United's technicians feel, should be no surprise. It is simply the logical step to be followed as flight operations management recognizes that the most important factors affecting the efficiency of jets are those pertaining directly to the weather.

The NAV Flight Planner

THE NEAREST THING to flight planning by computer, without the expense of owning or leasing a computer, is the NAV system, now being offered by NAV, Inc., Honolulu.

The ingenious development of H. E. "Van" Benham, Hawaiian Airlines' chief navigator, it employs flight planning curves developed from electronic computation to supply answers for the thousands of variables which can affect a flight.

Experience in two actual operational experiments, by Hawaiian Airlines in military charter service and another by Overseas National Airways, shows tangible savings attributable to the NAV system. According to L. D. Machado, v. p.-operations for HAL, the system has saved an average 21.5 minutes per leg in Travis AFB-Honolulu-Wake Island-Tokyo operations since June, 1959 compared with manual flight planning results for the year previous.

Big savings for ONA

For ONA, the NAV system has sliced operating costs, increased payload capability and improved schedule reliability, says Mark Farmer, asst, v.p.-operations and maintenance.

In both instances, the NAV system was used for all flight planning, although periodically, flight plans would be prepared manually to compare the results in flight times, fuel burnoff and overall accuracy. In all instances, according to Benham, NAV produced a shorter flight time, lower fuel burn-off and exhibited a consistent high degree of accuracy.

In one test by HAL, a junior copilot with a few hours indoctrination on NAV was pitted against an experienced team consisting of two flight navigators and a senior captain. With both operating from the same basic information, the navigator-pilot team took one hour to compute a plan calling for 9 hrs.-23 min. flying, a fuel burn-off of 20,450 lbs. and a gross weight requiring off-loading of 150 lbs. payload.

In this same time, the junior copilot using NAV analyzed 18 different flight plans and selected an optimum plan calling for 8 hrs.-52 min. flying, a burn-off of 20,151 lbs. thus saving 30 minutes flight time and 300 lbs. of fuel with no sacrifice in payload.

The NAV system is tailored to specific aircraft types and the cruise control procedures used by a particular airline. It ranges in price from $15,000 to $25,000 depending on

the type of aircraft, cruise control procedure and number of sets of curves and flight planner desired.

Once established for a given airline operation, here's how the system is used:

All variables except route distance, wind factor (and, for jets, the temperature) are plotted on "flight planning curves" printed on a special heavy paper. The wind, temperature and distance curves are printed on a transparent movable overlay called a "flight planner."

By positioning the "flight planner" on the "flight planning curves" an answer can be determined for fuel burn-off and flight time for any combination of distance, altitude, cruise control, wind and temperature.

Each set of curves provides an emergency section to cope with situations involving one- or two-engine-out operation.

Information given

1. Distance (for track selected). 2. Average weighted wind factor. 3. Average weighted temperature both in climb and at cruising altitude. 4. Type of cruise. 5. Operating weight including payload and reserves.

How to use NAV system

1. Select cruise control and altitude desired. These are plotted on separate groups of curves.

2. On "Flight Planner" determine air distance by adjusting ground distance on wind factor curve.

3. On "Flight Planner" determine flight distance by adjusting air distance on temperature curve.

4. Align "Flight Planner" on fuel consumption curves along landing weight line and read at the "flight distance" point the fuel burn-off and takeoff gross weight.

5. Apply correction for non-standard temperature in climb to takeoff gross weight and to fuel burn-off to obtain corrected takeoff gross and burnoff.

6. Align "Flight Planner" on time curves along takeoff gross weight line and, at the "flight distance" point, read overall flight time.

7. Apply correction for non-standard temperature in climb to flight time and obtain corrected flight time.

8. Determine "flight distance" to check points on flight planner by repeating steps 2 and 3.

9. Align "Flight Planner" along takeoff gross line of burn-off curves and read time at check point flight distance points.

10. Align "Flight Planner" along takeoff gross line of time curves and read time at check point flight distance points.

Using the NAV system in this fashion will produce the overall fuel burn-off, the overall flight time, the fuel burn-off at each check point and the flight time to each check point.

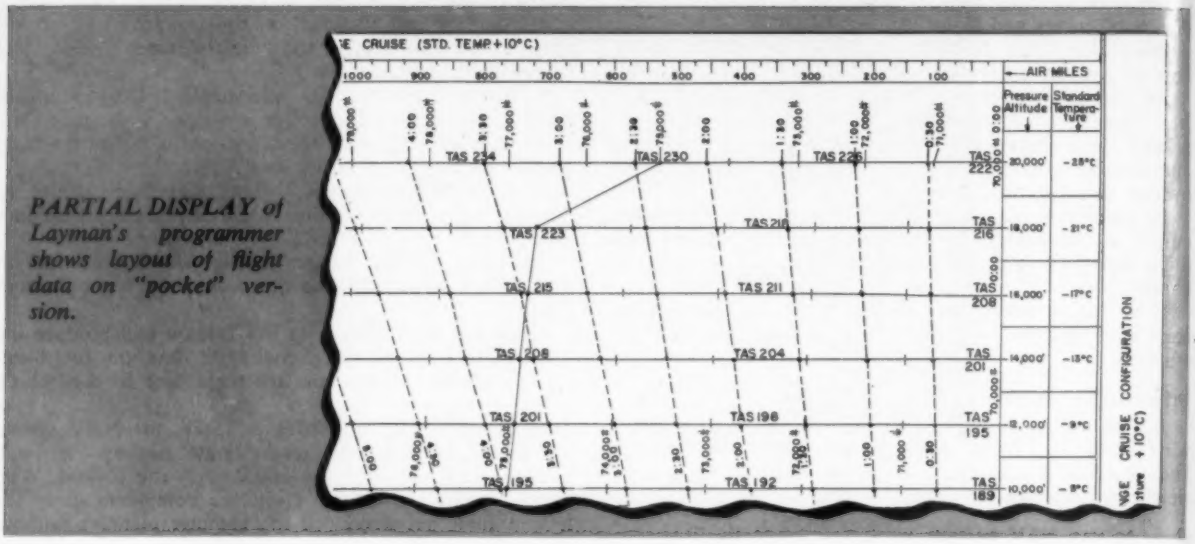
Produced in the form of a portfolio, the NAV system curves are large enough for accurate reading yet small enough to allow convenient handling in the cockpit. With all basic data derived by electronic computers, it is the nearest thing yet developed to computer planning without the cost of operating a computer.

Programmed Flight Planner

A NEW FLIGHT PLANNING AID, serving the dual role of an in-flight cruise control device, is now being offered to all operators of transport aircraft—airline, executive and military.

Labeled the "Flight Programmer," it is the brainchild of Donald W. Layman, who until March of this year had

DEMONSTRATING jet version of "flight programmer" is Donald W. Layman (left). At right is Harold Mason, manager of in-flight service training for Trans World Airlines.



PARTIAL DISPLAY of Layman's programmer shows layout of flight data on "pocket" version.

served an 18-year hitch as manager in the flight training department of United Air Lines.

The programmer takes two different shapes, both tailor-made to the model aircraft and type of cruise procedure favored by the customer. One is a 4½ by 7 in. "pocket size" planner with a foldout arrangement that makes it easily adapted to use in flight. The other is the "flight bag" model for jets, a multidisc type with the built-in flexibility to handle as many different aircraft models as the customer desires.

The information is all there

Layman's approach to the planner has been to put all information necessary to plan a flight or change it enroute on the basic planner. The only variables omitted are the wind, weather and the choice of a route.

In use, it provides an accurate, direct reading of fuel burnout, flight times, distance and true airspeed. All can be read from the planner at the exact in-flight aircraft weight, for any altitude and temperature, without the need for involved conversions, calculations or references to tables or charts in a flight manual.

A sample "planner" prepared by Layman for the Douglas DC-6B folds out to 26 by 7 in. and is printed on a durable, plastic-coated paper to withstand the effects of repeated use.

In its presentation, the planner reads from right to left showing air miles, flight times and gross weights on a vertical scale and true airspeed, altitude plus standard temperature at each altitude on the horizontal scale.

A special table data relates time flown, fuel burnout and distance traveled at each flight level. For jet operations, the planner also indicates the exact weight and time recommended for step climb to higher levels, or when climb is desired for other reasons.

Wide variety of answers

It also tells the pilot what altitude to use for best efficiency, or the best altitude to fly with a given headwind component. If he wants to know the maximum range possible using all available fuel reserves, the planner indicates this range and the flight time it will involve.

As a further simplification of its use, Layman has prepared flight plan forms that match the layout of the planner. This, he feels, is the ideal combination to save time and money in planning and to get the most in accuracy and economy out of aircraft operation through planning.

Since the introduction of the programmed flight planner early this year, Layman reports good success in attracting the interest of potential customers. A variety of units are in the final stages of production for several major carriers subject to the acceptance of the finished product. Layman is producing a model for Convair tailored to the performance of the 880 jet.

One of the strongest prospects is TWA which is now negotiating for 2,500 planner units. The system is also being given an evaluation by the FAA Bureau of Research & Development and by the U.S. Air Force.

Biggest demand to date has been exhibited for the "pocket planner" which Layman expects to market at $5 and up depending on the aircraft model and flight procedures planned with its use. Requests for so many different aircraft types and for demonstrations of its use have taxed his staff to the limit, Layman says.

Annual service contract available

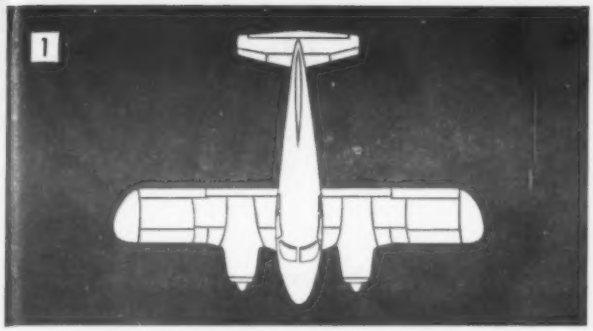
The more comprehensive units for jets, a large mechanical planner, is expected to sell unit for $30 per copy depending upon how much data is requested by the user.

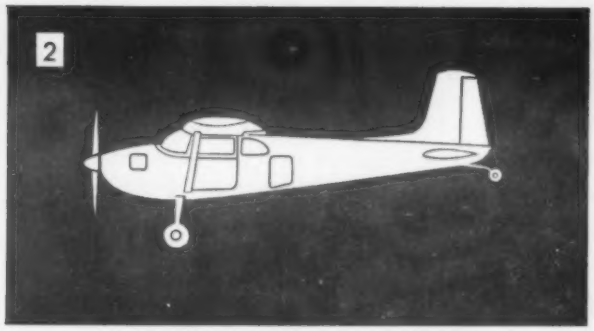
As an alternative to direct sale, the ex-UAL official plans to offer a package deal wherein flight plan forms that match the planner are supplied airline customers. This would entail an annual service contract, including a planner revision service.

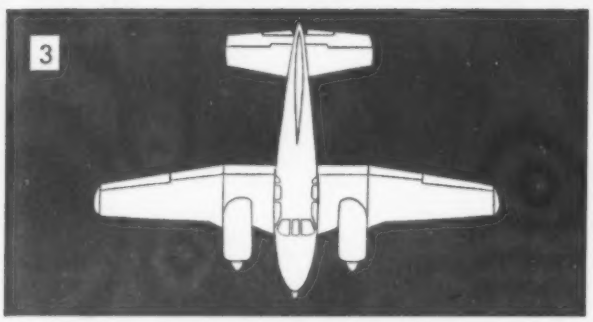
Despite a heavy schedule, Layman indicates he can deliver for a customer in 30 days from the time specifications and operating data are supplied for a particular aircraft model.

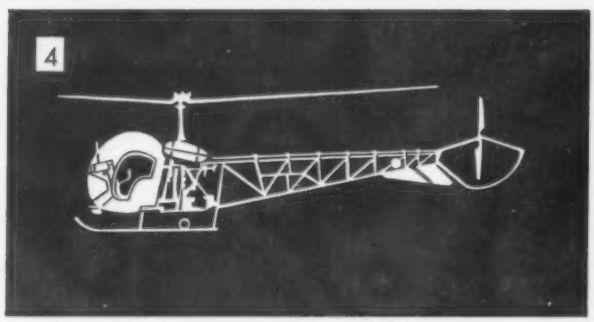
Although the planner development is an outgrowth of Layman's position and experience at United, his departure on March 5 of this year was accompanied by a release from UAL president W. A. Patterson of the carrier's interest in any copyrights or patents for the planner.

While serving a dual capacity as training consultant for the airlines and military services, Layman is marketing the planner from his headquarters at 3355 S. Ash Street, Denver 22, Calif. ■

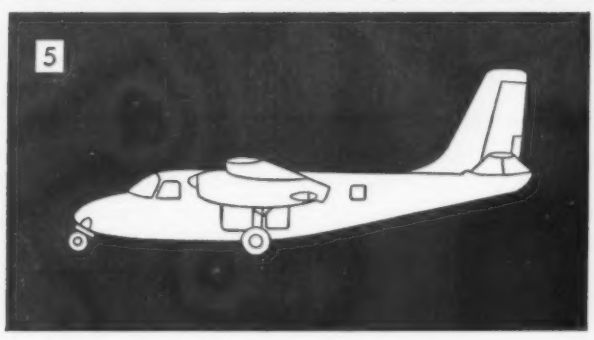






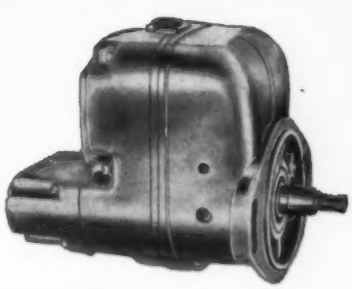


KNOW THESE 5 DISTINCTIVE AIRCRAFT?



Although differing in appearance, they all have one thing in common . . .

NEW BENDIX S-200 MAGNETOS



Here's a completely new, widely acclaimed ignition unit that provides superior performance and improved starting so necessary for today's 4- and 6-cylinder business aircraft.

In the Bendix® S-200 magneto, a great new design concept eliminates the mechanical impulse coupling. Replacing it, a retard breaker and battery-operated vibrator produce a "shower of sparks" at the spark plug through high voltage induction in the magneto's secondary. A combination ignition-starting switch automatically controls starting and operation of retard breaker, magneto and booster. The S-200 magneto is typical of Bendix capabilities in delivering superior ignition equipment, including magneto systems for aircraft of all types and sizes. Write today for complete information on the S-200 magneto or other ignition needs.

Pictured above: 1. Piper Aztec 2. Cessna 180 3. Beechcraft Twin Bonanza 4. Bell 47-G2 Helicopter 5. Aero Design—Model 500

Scintilla Division
SIDNEY, NEW YORK

THE Bendix CORPORATION

Six Month Turbine Delivery Preview

More than 100 big jets and 26 turboprops will be turned over to airlines by U.S. manufacturers between now and March 31

ALL FIVE U.S. TURBINE MAKERS will have passed the half-way mark in deliveries against outstanding orders as commitments between now and March 31 are fulfilled.

With Convair and Douglas running abreast at 41 and 42 aircraft deliveries, respectively, over the next six months, the pressures for more orders to fill production lines increase.

Boeing, with 55 jets still to be delivered beyond this period is in the strongest position. Douglas holds commitments for 20 aircraft beyond the March 31 date, and Convair, last to enter the jet competition, has 44.

For Fairchild, the next six months will see a completion of its scheduled orders although several follow-on as well as new F-27 orders are expected to materialize in the interim. Lockheed has commitments for 14 aircraft after March 31, but a Navy order for an ASW version of the turboprop is expected to keep production alive for some time. ■

BOEING 707 and 720

Airline	Total on order	Delivered 9/30/60	To Be Delivered 9/30/60—3/31/61
Air India (420)	4	3	—
Air France (320)	17	15	2
American (26-120) (25-720B)	51	32 (25-120) (7-720)	11 (1-720B) (10-720)
Avianca (720B)	2	—	—
BOAC (420)	15	9	6
Braniff (5-220) (3-720)	8	4	1 (720)
*Continental (4-120)	5	5	—
Cubana (2-120)	2	(Leased to Western, but carried on Boeing books as Cubana)	
Eastern (720)	10	—	—
El Al (420)	2	—	—
Ethiopian (720B)	2	—	—
Irish (720)	3	—	3
Lufthansa (5-420) (4-720B)	9	4	1 (720B)
PanAm (6-120) (26-320)	32	29	—
Qantas (7-120) (3-138B)	10	7	—
Sabena (320)	5	5	—
So. African (420)	3	3	—
TWA (15-120) (12-320)	27	27	—
United (720)	29	11	7
Varig (420)	2	2	—
**Western (720B)	4	—	—
USAF	3	3	
Totals	245	159	31

* Continental has leased one additional aircraft from Boeing for a total of five. Lease includes option to buy.
** Western has ordered four 720B aircraft, but is operating two Cubana 120s under lease from Boeing.

CONVAIR 880 and 600

Airline	Total on order	Delivered 9/30/60	To Be Delivered 9/30/60—3/31/61
American (600)	25	—	—
Avensa (880M)	1	—	—
*Capital (880M)	7	—	7
Civil Air Transport (880M)	1	—	1
Delta (880)	13	7	3
FAA (880M)	1	—	—
Japan Air Lines (880M)	3	—	—
Real (600)	3	—	—
**SAS (600)	2	—	—
**Swissair (600)	7	—	1
TWA (880)	30	1	29
Totals	93	8	41

* Capital aircraft reportedly have been sold to Hughes Tool Co. for TWA.
** SAS-Swissair order has been split. Swissair will take 7 aircraft, SAS will take 2. Two of the Swissair order will be leased to SAS giving Swissair 5 and SAS 4.

DOUGLAS DC-8

Airline	Total on order	Delivered 9/30/60	To Be Delivered 9/30/60—3/31/61
Aeronaves (20)	1	—	1
Alitalia (40)	6	3	1
Can. Pacific (40)	4	—	3
Delta (10)	6	6	—
Eastern (20)	16	8	3
Iberia (50)	3	—	1
Japan (30)	5	3	1
KLM (30-7) (50-5)	12	6	4
National (20)	3	2	1
Northwest (30)	5	4	1
PAA (30)	19	10	9
Panagra (30)	4	4	—
Panair do Brasil (30)	2	—	2
Philippine (50)	2	—	—
SAS (30)	7	6	1
Swissair (30)	3	3	—
TCA (40)	11	4	6
TAI (30)	3	1	1
United (10-22, 20-15, 50-3)	40	30	7
UAT (30)	2	2	—
Totals	154	92	42

Note: Numbers in parentheses indicate model, i.e. 10—domestic with JT3C; 20—domestic with JT4A; 30—overwater with JT4A; 40—overwater with Conway and 50—fan engine version.

FAIRCHILD F-27

Airline	Total on order	Delivered 9/30/60	To Be Delivered 9/30/60—3/31/61
AREA	1	1	—
AVENSA	5	5	—
Aloha	6	6	—
Bonanza	10	8	2
No. Consolidated	3	3	—
Ozark	3	3	—
Pacific	6	6	—
Piedmont	8	8	—
Quebecair	3	3	—
THY Turkish Airline	5	3	2
Trans Mar de Cortes	1	1	—
West Coast	6	6	—
Wien Alaska	2	2	—
*Corporations	24	24	—
Total	83	79	4

* Corporations include: Abiti Power & Paper Co., Bank of Mexico, Butler Aviation (Pepsi Cola), Champion Spark Plug Co., Columbia-Geneva Div., Continental Can Co., General Tire & Rubber Co., Ideal Cement Co., Johns-Manville Corp., Kimberly-Clark Corp., Murray Corp., Noland Co. Raytheon, Reynolds Metals Co., R. J. Reynolds Tobacco Co. and Westinghouse Electric Corp.

LOCKHEED ELECTRA

Airline	Total On Order	Delivered 9/30/60	Due for Delivery 9/30/60—3/31/61
AMERICAN	35	35	—
ANSETT-ANA	3	3	—
BRANIFF	9	9	—
CATH. PACIFIC	2	2	—
EASTERN	40	40	—
GARUDA INDO	3	0	3
KLM	12	10	2
NATIONAL	23	12	3
NORTHWEST	18	10	8
PAC. SOUTHWEST	4	3	0
QANTAS	4	4	0
TEAL	3	3	0
TRANS AUSTRALIAN	3	3	0
WESTERN	12	6	6
UNANNOUNCED	5	0	0
*OTHERS	3	3	0
TOTAL	179	143	22

*Includes Navy (1) P3V; General Motors (1) and lease to Navy (1) for Pacific Missile Range. Orders by Trans-American Aero Corp. and ASPA (Peru) dropped due to lack of financing.

PROBLEMS? OR PROFITS?

Route pattern complexities of typical airlines demand a cargo aircraft with the capability of operating over both short and long route segments with excellent economy and earning ability. The Canadair Forty Four will do this for you! It combines the air cargo feeder liner with the long range aircraft to provide a standardized economic fleet unit. The Forty Four will give you profit-making operations, at current rates, over route segments as short as 200 miles and as long as 4,000 miles.

This is the type of flexibility that will answer the many and varied problems confronting airline operators who, because of the growing demands of shippers, are being forced to provide a combination of short, medium and long range air cargo services for the carriage of freight at attractive and competitive tariffs. In this situation, the Canadair Forty Four offers excellent economy and earning ability over the complete range of route structures that must be provided in the collection and distribution of air cargo.

Practical applications of this are found in the short route cargo services that are necessary in the supply and distribution of goods to or from the terminal points of trans-continental and trans-Atlantic services. This is evident between the major cities of the Eastern United States and between the principal points of Europe. These inter-city runs are essential extensions to the long haul trunk service, and with the Forty Four can be handled without a change of aircraft.

The need for this system of short, medium or long range operations will develop through the growing awareness among business establishments that the carriage of articles by air is becoming an essential element in the overall marketing function. This will open up new markets, new transportation requirements, new inter-city services. The Forty Four, with its flexibility of performance, can carry cargo at a profit over the whole distance spectrum—short, medium and long range, and has the airfield performance characteristics to get in and out of 85% of the world's major airports. THESE ARE DECISIVE ADVANTAGES IN FAVOR OF THE FORTY FOUR.

SOME RUNWAY AND PAYLOAD SPECIFICS ON THE FORTY FOUR-D4

1. From runways as short as 6,000 feet, can operate with 70% payload up to stage distances of 3,000 miles.
2. Can operate from 85% of the world's major airports, with due consideration to both runway length and allowable wheel loading.
3. Will earn an operating profit with load factors as low as 30%.
4. Breakeven load factors in the Forty Four represent loss loads on larger proposed equipment.
5. Breakeven load factors on larger proposed equipment represent major profit payloads on the Forty Four.
6. Can operate *non-stop* on the London-New York route with an average annual payload of over 55,000 lbs.

CANADAIR LIMITED, MONTREAL, CANADIAN SUBSIDIARY OF **GENERAL DYNAMICS**

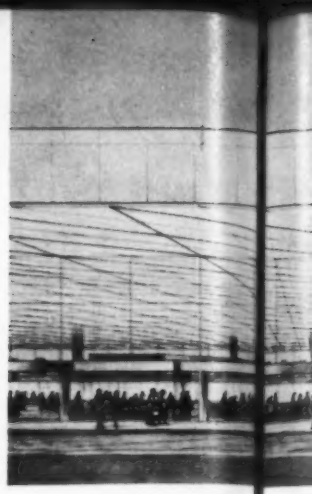
'Open' Design Tmp

WHEN THE PORT of New York Authority acknowledged the inevitable demise of the temporary terminal building at Idlewild after TWA's "flying-wing" terminal opens early next year, it sought a design for a new multi-airline terminal to be built on the 22-acre site. Only one premise was inviolate: the new design was to be as revolutionary as the nine other terminals-of-the-future clustered about Terminal City.

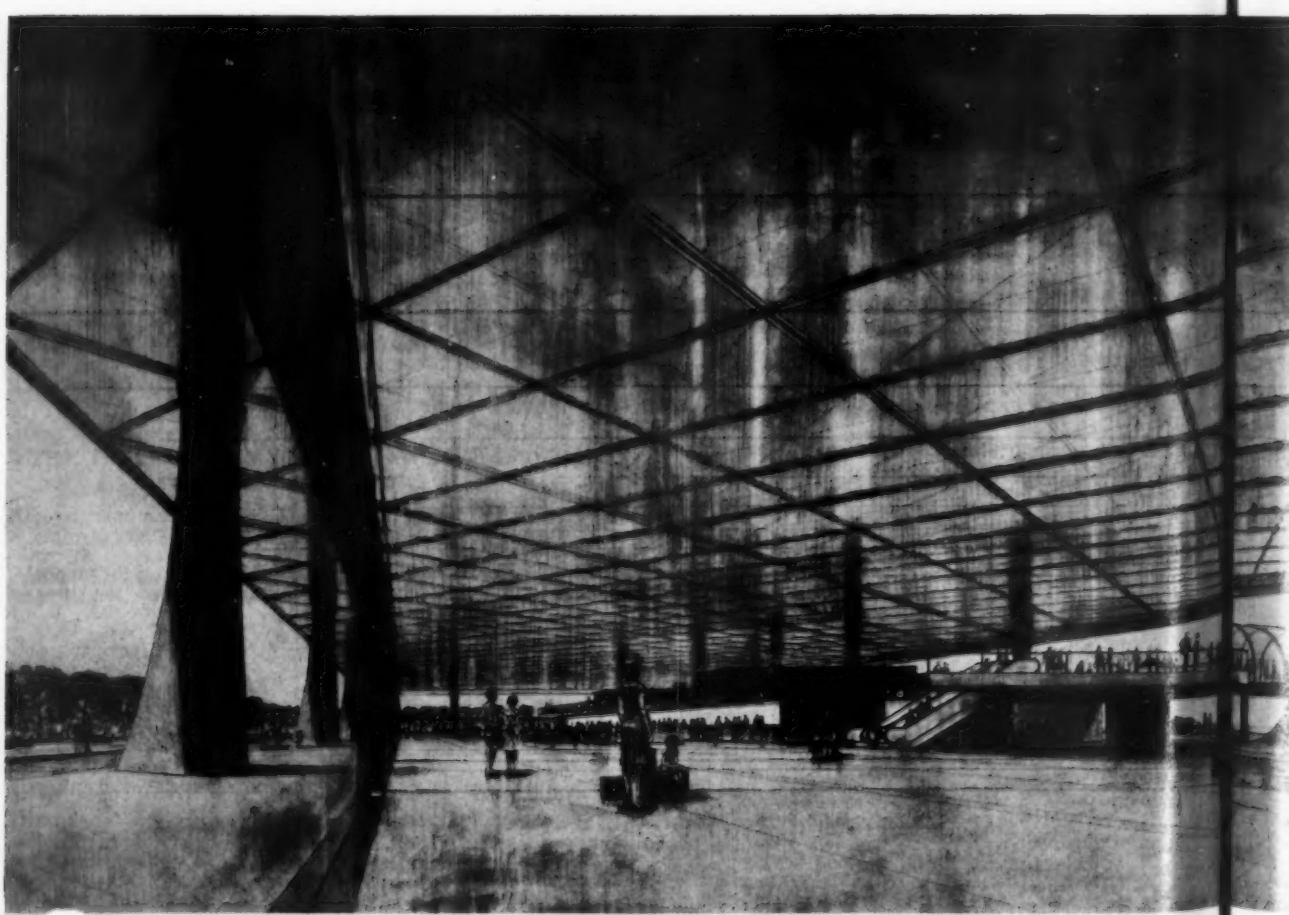
PNYA accordingly announced a design competition. Five famous architects entered. Their handiwork was identified only by number. Three reknown architect-judges spent two days poring over the submissions before announcing a decision.

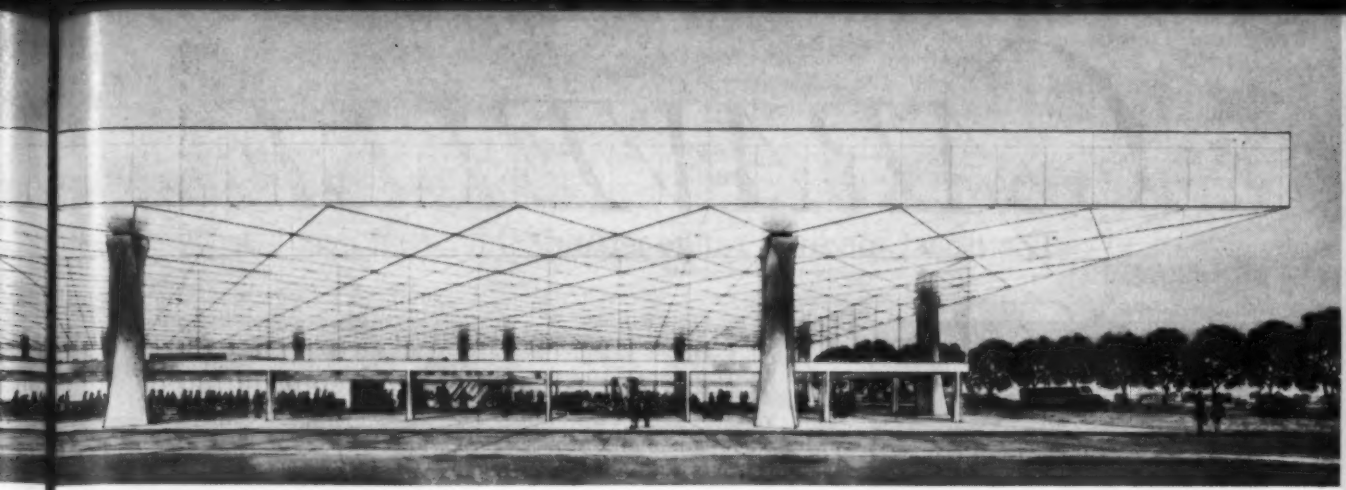
The winner: I. M. Pei, designer of the Mile High Center at Denver and the East-West Center at the University of Hawaii. His design (shown below and top, right) calls for a block-long rectangular structure with two-story-high glass walls all around. A unique space-frame roof, supported by massive pylons outside the building walls, is intended to compliment its terminal neighbors.

Construction of the new building will begin in 1961 and will span three years. When completed, it will house all airlines not assigned to the foreign-flag Airline Wing Buildings or ensconced in their own terminals.



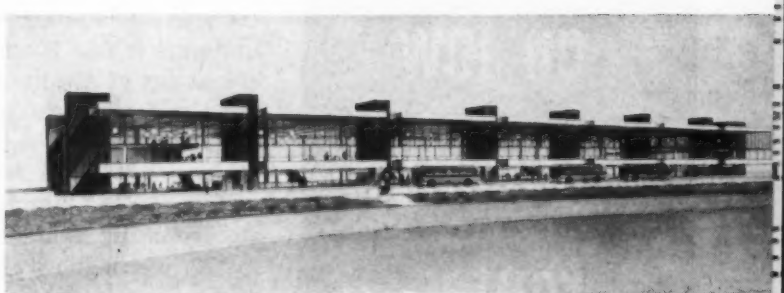
EXTERIOR (right) and interior (below) of Pei's design display unique approach to terminal layout.

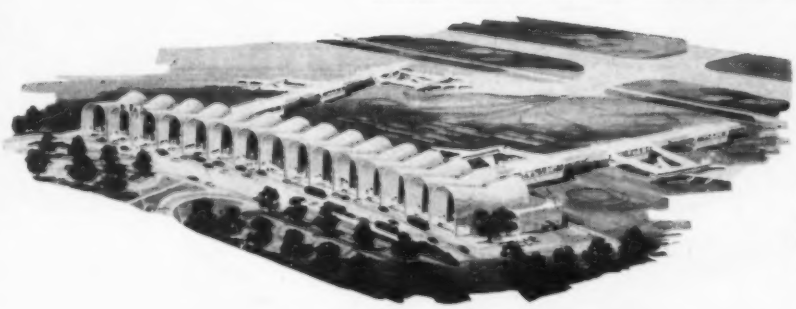




Tnphs in Idlewild Terminal Contest

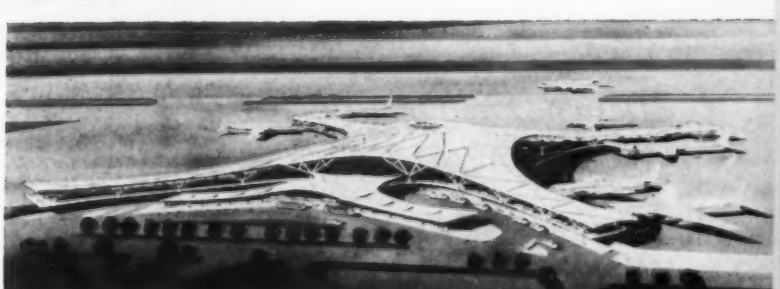
MORRIS KETCHUM, Jr., of Ketchum and Sharp, submitted design at right.





TUNNEL-SHAPED segments are featured in design by Arvin Shaw, III (left), of the firm of Carson and Lundin.

SPRAWLING terminal scheme was conceived by B. Sumner Gruzen, of Kelly and Gruzen. Not shown is entry of Philip Johnson Associates.



CARAVELLE

The finest medium range jetliner the world over

Profit maker even on low density routes

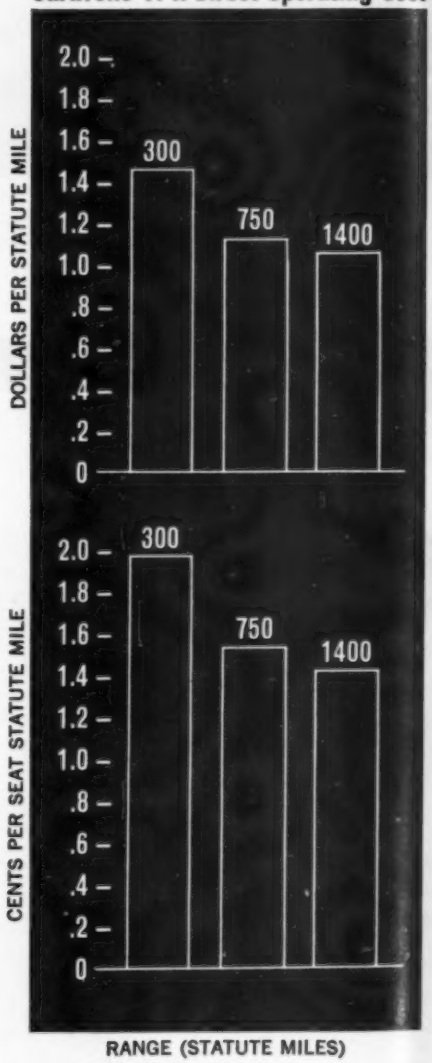
Caravelle can make profits with one-third fewer passengers than any other jet at 500 statute miles. And whether the route is short or medium range, if the passenger potential is low, Caravelle's profit-making potential is outstanding.

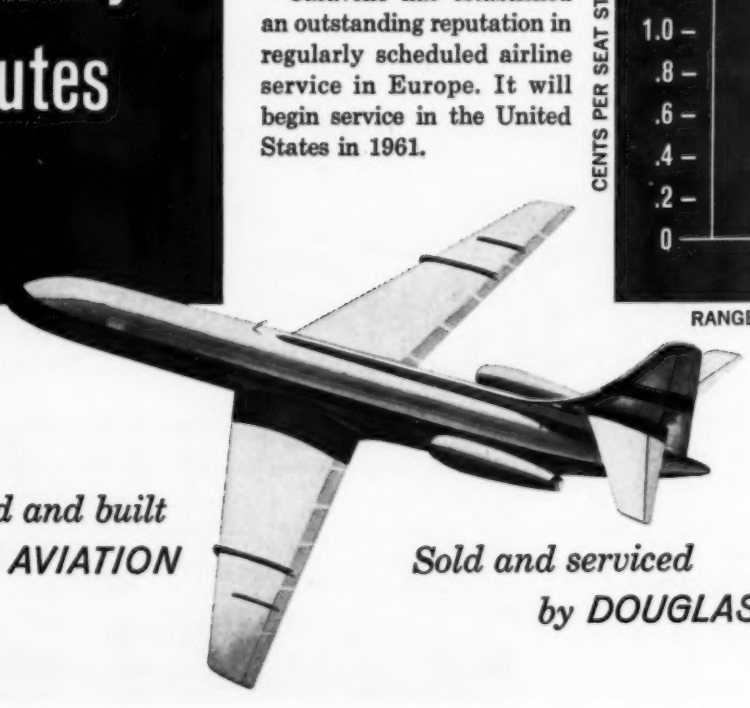
These economy factors are illustrated in the charts on the right, which are based on ATA cost formulae.

Caravelle's additional advantage is that it can get in and out of airports that serve low traffic areas. It has the shortest runway requirements of any jetliner.

Caravelle has established an outstanding reputation in regularly scheduled airline service in Europe. It will begin service in the United States in 1961.

Caravelle VI R Direct Operating Cost





Designed and built by SUD AVIATION

Sold and serviced by DOUGLAS AIRCRAFT

AIRLIFT Photo.

ATCA's McDermott: 2,000 new members a year.

1958, the rate of improvement has not been good. True, the number of ATC men has expanded rapidly, and new towers and centers are being constructed. But many facilities—overcrowded, poorly ventilated and inadequately lighted—continue to function with second-hand and make-shift tools. In many, the lack of adequate janitorized service has relegated their appearance to the level of a bus terminal washroom.

We recognize that Congress has given FAA authority and resources to correct these conditions. We are confident that eventually the emphasis will be placed on ATC—the principal product of FAA.

Q. *Is FAA's organization for ATC management satisfactory?*

A. Only to a degree. Compared to the position ATC held during the tenure of CAA, we have made a considerable advance in stature. However, ATC still does not have the voice in the administration of the Agency which it really requires. I would like to see the appointment of an assistant administrator solely responsible for all aspects of ATC—engineering support, research and development. I envision a man stemming from a career in ATC.

Fledgling ATCA Battles for Stature

Interview with director Francis M. McDermott underscores high points of this young association's drive for greater air safety.

Q. *As one of aviation's younger associations, do you feel the Air Traffic Control Assn. is here to stay?*

A. There's no doubt on this point. In four years our membership has grown past 9,000 and we have more than 50 corporate members. We have added 2,000 new members each year, mainly professional controllers, but also pilots and electronic engineers. Our roster includes several hundred military members. ATCA is now represented in virtually every free nation. Our fifth annual meeting this month in San Francisco may see the formation of an international federation of air traffic control associations.

Q. *What significant contributions has ATCA made on behalf of controllers?*

A. Principally, we are gradually creating a public awareness of the grave responsibility involved in controlling traffic and the technical complexity of the job itself. This has replaced some of the apathy formerly shown by CAA and Civil Service people and has set machinery in motion to improve the ATC working environment. ATCA's testimony before the Monroney Committee played an important role in the formation of FAA. We aided materially in getting ATC facilities reclassified and upgraded. We have given FAA the detailed plan for a career blue-ribbon ATC service required under Section 302g of the FAA Act. We expect legislation on this next spring.

Q. *Are the needs of controllers being answered at a satisfactory pace?*

A. Regrettably, no. Although the ATC problem provided principle impetus for speedy passage of the FAA Act in

Let's face it, 47% of FAA employes are engaged in one way or another in ATC. But transcending these physical numbers is the fact that ATC is FAA's principal reason for existence. I predict we will see the day when an FAA Administrator is drawn from the ranks of professional air traffic controllers.

Q. *Is the current ATCA project to develop future ATC communications recommendations a new association activity?*

A. The program itself is not new. One of ATCA's original objectives was to use the practical experience of the controller to improve the ATC system. Our efforts in the past have been largely in response to requests from FAA or the industry.

In "Project 2,000" we will focus the attention of our 9,000 members in 49 chapters upon specific technical and operational problems. The end product of this effort should be a series of standards for air traffic control—operational requirements laid down by the experts, the professional ATC controllers.

The first of this series will deal with the data link problem simply because it is the most confused area in ATC today. We propose to follow this with studies of ATC displays, data processing, communications other than data link, facility layout and others.

Q. *One often hears reference to the severe pressures and tension under which controllers work. Just what is the situation?*

A. Stress and job tension can be defined as incredible. A controller works a straight 8-hour shift handling up to 100 aircraft an hour. His lunch often goes untouched. I know of no other occupation which has a more demanding responsibility for life and property over a sustained period of time.

In an aviation atmosphere so unforgiving of the slightest error, no one is more susceptible to the possibility of error

"Starting salaries and the entire pay structure are not commensurate with the responsibility."

"The safety of today's air transport industry hangs on a tenuous thread of human endurance."

AIRLIFT Photos.

"ATC should have the final say with respect to layout and design of [control tower] cab, windows, etc."

than the controller. It is truly a young man's game. A growing number of good ATC people are burning out in their 30's and 40's. The profession is relatively new. We have no large body of older men actively controlling traffic. Many people, even in aviation, are unaware that the FAA controller is a Civil Service employe who must work for 30 years until he is 60 to qualify for retirement. We hopefully expect the FAA's new medical research program to produce the data on ATC job stress and strain that will enable Congress to enact realistic retirement legislation.

Q. *Is FAA's training experience bearing out your contentions on the difficult nature of the controller's job?*

A. FAA's training program is one of the brighter aspects of the new Agency, but it has not effectively removed the shackles of the Civil Service Commission. ATC starting salaries (under $5,000) and the entire pay structure are not commensurate with the responsibility.

The standards set by CSC are entirely too low. Thus FAA suffers one of the highest washout rates in government. Many facilities run as high as 30 and 40 percent. This is not the way to attract and retain qualified people.

Occasionally CSC requirements force FAA to hire a man from the register, even though he has been rejected for ATC, simply to facilitate hiring the next man listed.

Q. *What do you feel ATCA can do for ATC and for controllers that FAA can't do?*

A. ATCA has generated a feeling of professional pride that can only result in higher efficiency. It is true of ATCA, as of many professional societies, that members will put forth greater effort than they would without a professional affiliation.

Q. *Is the controller feeling any effects from deterioration of working relations between pilots and the FAA in recent months?*

A. Not at all. The Association works hard to avoid this sort of thing. There is the closest spirit of cooperation between pilots and controllers. There is no reason why it should be otherwise. Controllers have the privilege of riding the jump seat on commercial airliners. This helps familiarize them with actual conditions under which pilots operate. This program is invaluable.

In only one way could the situation be improved. We would like to see a reciprocal program by which pilots would be urged to spend time in towers and control centers. Many do this already, but the program could be expanded to mutual benefit.

Q. *For years controllers have maintained that equipment would be bought and installed only to find it just wouldn't do the job for them. Has this situation been corrected?*

A. I can't say it has been corrected, but it is improving. Controllers must, of course, assume a share of the blame, for it used to be a popular sport to criticize engineering. The establishment of ATCA helped spur a more mature attitude on the part of controllers, who now join in the effort toward engineering improvement.

One area needing attention is the design of control towers. Although usually built by city governments, they usually involve a measure of federal funding. ATC should have the final say with respect to layout and the design of the tower cab, windows, etc. Practical ATC requirements often have been subjugated to "esthetics."

Q. *How do you size up the most important areas to be tackled to make ATC the safest and most efficient system for handling future traffic demands?*

A. The safety of today's air transport industry hangs on a tenuous thread of human endurance. We can't possibly cope with the steady increase in air traffic (up to 15% each year), with the same degree of safety, unless something is done to aid the air traffic controller.

Let's start with realistic standards for entrance to the profession; an adequate payscale, working hours adjusted to traffic densities; provision for a retirement system which recognizes the mental and physical demands of the job. These will help attract and retain an efficient corps of air traffic controllers.

Second is the need for improving tools for the acquisition, processing, and display of flight data upon which the controller will base his decisions. The controller is not deluded, however, by the thought that automation will materially reduce his workload or relieve his tensions. It will undoubtedly allow him to handle more aircraft, make more decisions and thereby actually *increase* stress. ■

CLEAN JET FUEL is essential to safe jet aircraft operation. Today, all aviation fuels in current service may be provided the ultimate protection against fuel contamination. The new Warner Lewis 2-stage separator/filter eliminates jet fuel contaminants — free water and dirt. This new equipment developed by Warner Lewis Company, pioneer manufacturer of separator and filter equipment for aviation refueling, delivers the cleanest fuel ever demanded by commercial or military aircraft. A Silent Servant of Safety, this equipment is installed at the fixed facilities and on refueler trucks and hydrant carts serving most of the world's major airports. It is approved and in production for the U. S. Air Force under recent contracts. For further information, write Aviation Products Division, Warner Lewis Company.

WARNER LEWIS COMPANY
BOX 3096 • TULSA, OKLAHOMA

SILENT SERVANT OF SAFETY

WARNER LEWIS PROTECTS THE JETS

DIVISION OF FRAM CORPORATION
IN CANADA: FRAM CANADA, LTD., STRATFORD, ONTARIO

Charter Growth Only Moderate

More passengers than ever are riding charters in 1960, but few carriers are intent on wooing them

DESPITE CONSIDERABLE HOOPLA about the increasing number of people that are flying on charters, don't look for these flights to become a major source of revenue for the 12 U.S. trunklines.

Including both domestic and international operations, charters last year amounted roughly to ½ of 1% of passenger revenues. The figure is unlikely to go much higher.

Press releases have told of United carrying major league baseball teams 12.5 million passenger-miles this year, of Eastern hauling 4,000 Admiral Corp. dealers, distributors and executives to Miami Beach, and of other movements. But still, it does not add up to big business.

The international story is different, and has been widely publicized. Last year, 172,600 passengers rode IATA transatlantic charters, others went via supplementals, and an increase is expected this year. Pan American's record is impressive—in addition to the Atlantic, PAA this month is completing movement of 5,000 Gibson Refrigerator dealers between 24 mainland cities and Hawaii, in what it claims is the largest all-jet charter.

However, the 12 trunks took in less than $10 million from charters last year, and 1960 will show only a small increase, although some carriers are forecasting big gains.

Some carriers aren't interested

Why isn't this a bigger source of business? Among reasons disclosed in an *AIRLIFT* survey are:

Some carriers frankly aren't interested. They are concentrating on scheduled operation.

There's a feeling that charters are marginal from a profit standpoint.

There are headaches—pilot time, positioning equipment, adequate utilization of equipment, etc.

Among the optimistic airlines are Delta, which says the charter outlook is bright and which expects to up revenue from last year's $203,500 to between $450,000 and $600,000; National, looking for over $1 million against 1959's $727,000; Braniff, expecting to double last year's $398,700; Continental, forecasting a threefold increase.

On the other hand, American says frankly that its policy is to provide the "best scheduled operation in the industry. As a result, our charter work always has been minute . . . because we do not believe in canceling schedules to accommodate a charter." AA's revenue from this source last year was only $278,000, less than 1/10th of 1% of passenger revenue; no increase is anticipated.

The leader among the 12 trunks is United—$2.8 million or 1.05% of passenger revenue. This year it will be less because of lack of pilot time due to transition from piston to jet. And, says v.p. Homer Merchant: "We do not consider this as a major source of revenue to be developed but only to accommodate high volume-producing accounts, sports and other type of pleasure travel that perhaps would not move at all if it were not for the convenience and price of charters."

The economics of charters are questioned by W. L. Morrisette, Eastern's v.p.-sales. "I would be more enthusiastic about charter sales if I felt that the carriers were reaching new markets . . . It is my experience that this is not true and in too many cases we are merely diverting traffic from our scheduled service.

"It is easy to fall into the practice of considering charter revenue as 'found' money and overlooking the high cost of handling this business . . ."

Only a handful of charters have been flown in jets, which are being pressed into scheduled service as rapidly as possible. And, contrary to some opinion, charters are not keeping otherwise-surplus piston aircraft busy. Most carriers say they are sandwiching these flights in between schedules.

DSMs handle most charter business

Most important sources of charter business for the trunks are business and industrial (incentive contests, sales meetings, etc.), athletics and military. Special staffs are not assigned to develop this traffic—it's the responsibility of the district sales managers.

A number of local service lines are digging hard for charters and get a higher percentage of revenue from this source than the trunks. Among the leaders is Trans-Texas, at 3.1%, or $140,588 last year. North Central took in $310,382 but this included three weekly flights for Chrysler from Detroit to Redstone Arsenal, Huntsville, Ala. This has now been discontinued, and the 1960 forecast is $150,000. Frontier did $116,154 (1.31%), Southern $46,978 (1.43%), Bonanza $76,806 (2%).

A note of caution is sounded by Trans-Texas v.p. John Eichner. "A great deal of judgment has to be used in going after charters to make sure they contribute to net profits and not just to statistical growth. It has to be handled as a by-product to be really profitable."

On the Atlantic, charters assume much more importance. Although a number of carriers in this highly competitive field keep their figures confidential, a partial picture shows Pan American getting $2,331,922 from charters last year (17,995 passengers), or 2.38% of passenger revenue. Forecast for 1960 is 20,000 passengers and $2,450,000. Lufthansa, which carried 3,900 and took in $480,800 (2%) in 1959, expects a big increase to 14,000 and $1.5 million. El Al aims to jump from 910 to 3,000 passengers and from $243,000 (4%) to $733,000. ■

Trunk Charter Statistics

Airline	1959 Revenue	% of Passenger Revenue	1960 Forecast
American	$278,000	Less than 1/10 of 1%	No change
Braniff	398,792	0.6	Double 1959
Capital	87,707	Less than 1%	25% increase
Continental	250,000	0.6	Triple 1959
Delta	203,522	0.21	$450,000-$600,000
Eastern	1,353,092	0.5	NA
National	727,000	About 1%	Over $1 million
Northeast	40,000	0.1	$40,000
Northwest	376,765	Less than 0.5%	$600,000
TWA	1,303,000*	Less than 1%	Same as 1959
United	2,874,705	1.05%	$2,100,000
Western	179,027	0.3	213,155

* Domestic only

Source: Airlift Research

Collins Weather Radar is Weight Conscious

Weighs only 48.8 pounds . . . the lightest, smallest stabilized X-Band weather radar available.

Collins transistorized WP-103 Weather Radar System provides complete airborne radar service . . . with all the airline reliability of bulky conventional systems.

The scope reveals an accurate, continuous picture of weather conditions 150 nautical miles ahead of the aircraft in a 120° (or 360°) sweep. Special contour circuits clearly define corridors of milder weather and sharp, black areas of intense activity. An optional bright tube, daylight-tube indicator needs no cumbersome scope hood. New 12", 18" or 30" antennas adapt to fit any space requirements.

For compact, lightweight reliability, look into Collins WP-103 weather eye. Contact Collins direct for further information.

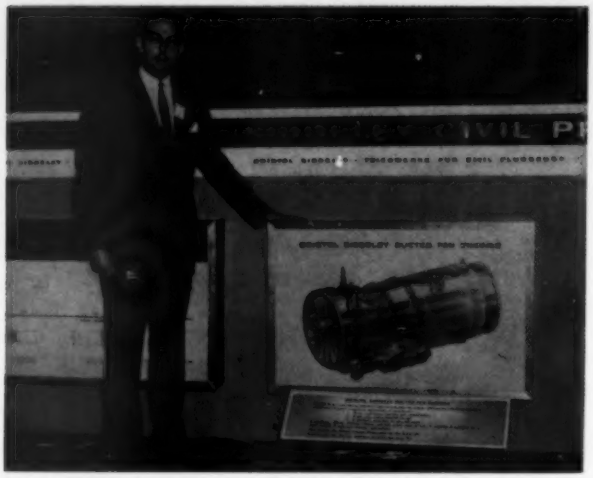
COLLINS

COLLINS RADIO COMPANY • CEDAR RAPIDS, IOWA • DALLAS, TEXAS • BURBANK, CALIFORNIA

Medium Jets Abound At SBAC Show

Schemes for Convair 240/340/440 and Viscount replacements are plentiful, but only one new transport aircraft is placed on exhibit

By ANTHONY VANDYK and MICHAEL DONNE



G. T. SMITH, sales manager of Bristol-Siddeley, emphasizes features of BS 75 fan engine for BAC-107 and Avro 771.

PODS ON BAC-107 attract attention of Ron Brown, technical sales manager of Hunting Aircraft, which created the design.

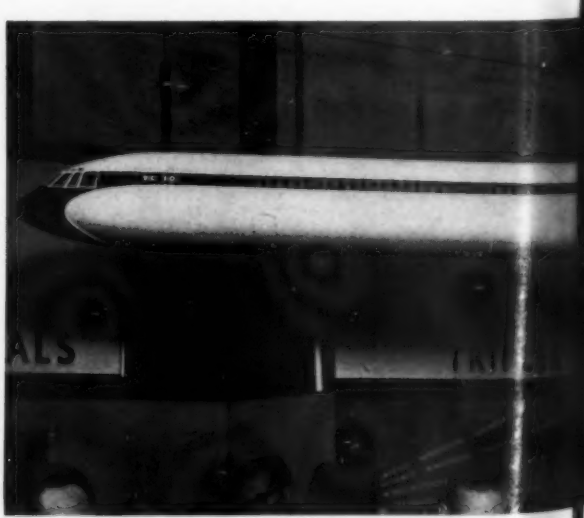
GROUP OF IRANIAN Air Force officers views AVRO 771 with A. V. Roe sales manager Prince Emanuel Galitzine.

FARNBOROUGH, ENGLAND—The Convair 240/340/440 and Viscount replacement market is a prime target of the British aircraft industry. This impression struck visitors to the Society of British Aircraft Constructors' annual show here.

The 1960 show, although full of interest, did scant justice to Britain's contribution to world air transport manufacturing because of the SBAC rule that foreign airframes may not be shown even if they are powered with British engines. This rule prevented the appearance of the Conway-powered Boeing 707 and Douglas DC-8, the Avon-powered Caravelle, the Tyne-powered Canadair CL-44, the Eland-powered Convair/Canadair 540 and the Dart-powered Fokker F-27. There is hope that the SBAC may soon change this rule.

The 1960 show had only one new transport aircraft on exhibit—the Avro 748, a twin-Dart DC-3 replacement. But the exhibition hall was full of new and interesting designs, some under active development and others merely projects.

Two models aimed at the Convair 240/340/440 and Viscount replacement market superficially resemble scaled-down Caravelles. They are the British Aircraft Corp.'s BAC-107 and Hawker Siddeley's Avro 771. Both use two



VICKERS SALES EXECUTIVE Henry Sharp points to twin pods located at the rear of Super-VC-10 transport model.

IN ARTIST'S CONCEPTION, crowds pass before Avro 748 "DC-3 replacement" powered by RR Darts.

rear-mounted Bristol-Siddeley BS 75s, a fan engine of 7,350 lbs. thrust and 1,485 lbs. dry weight with a by-pass ratio of 1.6:1. Bristol-Siddeley claims the engine offers a 10 percent reduction in fuel consumption, a 25 percent increase in takeoff thrust and a 50 percent decrease in noise.

The BAC-107's 48,500-lb. gross weight is slightly less than the Avro 771's 52,000 lbs. Both aircraft are designed to be operated economically on short ranges. The 771 is said to carry up to 60 passengers over stage lengths up to 500 nautical miles at a cruising speed of 570 mph for under two cents per passenger-mile. The BAC-107 is similar. Both are priced at about $1,500,000.

Not ignoring large jet transport

Britain is not neglecting the large jet transport. British Aircraft Corp. showed nose-loading versions of the VC-10 and Super-VC-10 long-range transport.

Vickers has developed an air freight system covering mechanized freight handling with VC-10 or Super-VC-10 freighters and new ground equipment. In its freighter version the VC-10 has a maximum design payload of 90,000 lbs. for a range of 285 nautical miles with two hours reserve fuel. Payload for 4,100 miles is 62,000 lbs.

The Super-VC-10 freighter has a maximum payload of 98,250 lbs. over 2,150 miles. Its payload for 3,850 miles is 54,000 lbs. Using basic ATA methods of costing, with palletized payloads and an annual utilization of 4,000 hrs., the VC-10 and Super-VC-10 freighters are claimed to have minimum operating costs of 4.5 and 4.7 cents per short ton statute mile. Prices are $7,280,000 (VC-10) and $8,120,000 (Super-VC-10).

One of the most significant advanced transport projects was exhibited by Rolls-Royce—a model of a Mach 2.2 wingless delta-shaped aircraft using jet lift. Rolls is now developing a jet lift engine which will produce 16 lbs. of thrust per lb. of weight. The concept was proved by a demonstration of the Short SC-1 experimental aircraft powered by five RB 108 engines which enable it to take off and land vertically as well as fly forward.

On the Short stand was the Skyvan, a box-like light transport powered by two Continental engines. Capable of carrying 1½ tons off a half-mile strip, the Skyvan is virtually an air truck. With a high wing (span 6 ft. 1 in.) the Skyvan's floor is only 26 in. above ground level. Freight can be loaded straight into the main compartment (16 ft. long by 6½ ft. square).

Main news from Hawker-Siddeley's de Havilland was that Comet 4 sales will reach 56 with current negotiations for five 4Cs by the RAF's Transport Command. A version of the DH-121 Trident three-jet transport aimed at the U.S. market is being designed while work goes ahead on the original version being built for British European Airways.

A long production run for the Armstrong Whitworth Argosy four-Dart transport seems assured, with the number ordered for RAF Transport Command rising from 40 to 56. During the show an order for six Handley Page Dart Heralds was placed by Jersey Airlines. This is the first really firm contract. A new version is being offered with a 42 in. extension of the forward fuselage. One stretched-fuselage model will carry 56 passengers on short routes.

The Hawker-Siddeley stand reflected the absorption of de Havilland, Folland and Blackburn in the past year. Visitors looking for Bristol Aircraft, English Electric, Hunting and Vickers found them at the stand labeled British Aircraft Corp. ■

Woodside Studio Photos for AIRLIFT.

Second of a series

Is Local Subsidy Here to Stay?

Last month, *AIRLIFT* published letters from three local airline presidents commenting on this question. Here is the second installment. More follow next month

"The locals are making dramatic progress in spite of the perpetual destitution being inflicted upon them by CAB economic regulations."

Hal N. Carr, Pres.
North Central Airlines

THE local service carriers each year have made dramatic traffic and operational progress. This has been accomplished in spite of economic regulation by CAB which has maintained the entire industry in a state of perpetual destitution. Financial handicaps endured by the locals have seriously curtailed the quantity, quality, and even the safety of the service they provide the public.

CAB's growing awareness of this situation in recent months has been most encouraging. The decision in the Local Service Rate of Return Investigation and the Board's present efforts to establish a class mail rate for the local industry seem to indicate that the matter is finally being given realistic attention.

Certainly, if the smaller communities are to have the benefits of scheduled air transportation, the bill must be paid—just as it is for rural free mail delivery. If the subsidy requirement is ever to be eliminated, the carriers must be permitted to attain an adequate earnings record. Only by a showing of satisfactory profits will the industry be able to attract sufficient equity financing to enable it to acquire the new, economical aircraft and other facilities essential to a self-supporting operation.

We do not foresee subsidy as a permanent fixture for local carriers any more than it was for the trunk lines. Although the dollar volume of local airline subsidy has increased, because of the many additional cities and new routes certificated, the percentage of subsidy income to total revenues has declined each year. In 1948, subsidy accounted for 72.3% of local airline revenues. In 1959, subsidy was only 33.6%.

With the qualifications I will outline later, we expect this favorable trend to continue. However, it will take approximately seven to 10 years before subsidy can be eliminated entirely. How fast the local airlines are able to reduce their need for subsidy will depend primarily on four major factors.

The first two of these I have already mentioned—earnings and equipment. Through realistic mail rates, the carriers must be permitted to achieve satisfactory profits for several years in order to attract equity capital. Thus far, the result of the industry's years of phenomenal growth and public service is a net loss of more than $4 million. This dreary financial record does little to attract investors.

With good profits, the carriers could improve their financial structure through stock issues. This, in turn, would enable them to acquire aircraft which would allow a break-even operation at a reasonable passenger load factor. In fact, if this record had been established years ago and the local airlines had been financially able to replace all their DC-3's, the subsidy requirement would, undoubtedly, have been greatly reduced by now. Rather than saving money, the CAB, in setting unrealistically low mail rates, has perpetuated the need for subsidy.

Two other important factors are the "use it or lose it" policy and the extent to which the Board permits the local airlines to have greater operating flexibility. The local carriers are all serving many points which, because of population, geographic location, or other reasons, will always require substantial subsidy.

In considering whether or not to continue air service to these stops, the Board must withstand pressures from civic pride and eliminate those cities which have little or no chance of ever supporting airline service. Thus far, the action of the Board has not been too encouraging.

Much to be accomplished

As to improvements in operating flexibility, while some progress has been made in this area, much needs to be accomplished. The CAB has authorized a few nonstop flights, such as Duluth-Chicago on our system, but the local airline certificates are still highly restrictive. These certificates should be liberalized to permit the locals to overfly any intermediate cities on their routes after each point has received a minimum of two round trips daily. This would enable them to participate in the longer-haul traffic and do much to help the industry attain financial self-sufficiency.

One of the recent examples of how detrimental the CAB's policy can be was the decision in the Twin Cities-Chicago Case. In North Central's exhibits, we had projected an annual saving to the government in excess of $1½ million a year if authorized for nonstop flights over this route. In spite of this, the CAB awarded the nonstop authorization to Eastern and Capital and denied our application.

To make matters worse, the Board also certificated these two carriers, as well as United, to operate between Chicago and Milwaukee in direct competition with North Central

over what had previously been our strongest segment. The result of this decision has been a traffic diversion and an increase in our subsidy need of over $300,000 a year.

The Board's reasoning that North Central should not compete with the trunk lines between the Twin Cities and Chicago, but that it is perfectly all right to add three major carriers to compete with us between Chicago and Milwaukee is difficult to comprehend.

In summary, the four basic objectives which must be accomplished by the local industry and the CAB to reduce subsidy are (1) adequate earnings, (2) modern aircraft, (3) elimination of profitless points, and (4) authorization for nonstop and longhaul flights.

If these goals cannot be achieved, local airline service must, for years to come, be federally supported—as are other services determined to be in the public interest.

"The whole key to subsidy is breakeven load factor. If we cannot control the costs with available equipment to the point where our breakeven load factor is reasonably attainable, then we will always require subsidy."

T. H. Davis, Pres.
Piedmont Airlines

ONE OF the most important steps that can be taken to reduce and, hopefully, eventually eliminate the need for subsidy would be the establishment of a class mail rate. Another is the continued elimination of route restrictions where such action will not create uneconomic or undue competition with other carriers.

The elimination of weak points or entire segments which do not produce at least enough traffic to offset direct expenses would reduce subsidy. Local service routes should be extended, where necessary, to make possible origination and termination of flights at strong terminals to balance traffic over the segment.

The additional accounting time required to supply information on the "use it or lose it" policy costs $200.00 per month even though we have no "use it or lose it" points. Realistic scheduling reporting requirements are unduly detailed and costly. There are many others.

The FAA should give more consideration to economic factors in the adoption of regulations. We are as interested in safety as anyone, but when "broad brush" regulations are put into effect, substantial and unnecessary costs are incurred. The flight recorder regulation was made applicable to the F-27 apparently because it was jet powered even though operated at relatively low altitudes. The same turbine performance regulation was placed on the F-27 that applied to the 4-engine pure jets.

Recently announced training regulations will increase local service costs by hundreds of thousands. I don't know of many, if any, accidents which would have been avoided had any of these regulations been put in effect long ago, nor do I believe safety will be much improved now.

While I do not now foresee elimination of subsidy over existing routes, I hope and believe it is not permanent. This depends largely on the extent to which the CAB extends air service to more and smaller communities.

The key to subsidy is break-even load factor. If we cannot control the costs with available equipment to the point where our break-even load factor is reasonably attainable, then we will always require subsidy. If the local service industry break-even load factor was comparable to that of the trunks (approximately 50%), then we could soon expect elimination of subsidy.

Let's look at the record. Costs have increased so rapidly that even the introduction of larger, faster equipment in local service operation has not appreciably reduced break-even load factor. It is still higher than can be attained in any existing local service system.

The only way the trunks have been able to stay off subsidy is by the vast increase in efficiency (productivity) of each successive new equipment program. We cannot expect to use such large equipment in our operations and continue to provide local service. After all, that is our only reason for existence.

From the beginning of Piedmont's operations in 1948 to the summer of 1951, we were able to improve productivity, decrease costs, and increase traffic to the point where our break-even subsidy need was only 4¢ per plane mile. This, I believe, is the lowest ever recorded by a local.

Since that time, even though our costs have continued below the industry average and even though our traffic has continued to increase, our break-even subsidy need per mile has continued to climb. In other words, wage and material costs have risen faster than productivity and traffic.

Stockholders, after 10 or more years, have lost almost all hope of ever getting a return on their money. Accordingly, it is almost impossible to sell additional equity. True, some has been sold within the last year or two, but very little compared to the need, and even that at exorbitant interest charges and underwriting costs.

There is no magic to financing. If CAB wants the local service carriers to build up their equity, they should soon put into effect their recent Rate of Return decision. All that's needed is assurance of an opportunity for earnings.

"Strong industry government resistance to ALPA featherbedding is an absolute must for freedom from subsidy."

Robert E. Peach, Pres.
Mohawk Airlines

WE do not foresee subsidy as a permanent fixture for *some* local carriers on their route structures. Specifically, Mohawk might well be subsidy-free on its present route structure under the following conditions:

- A careful administration of the CAB's "use it or lose it" policy, with resistance by the Board to local civic and political pressures.
- A few more terminal-to-terminal non-stop authorities.
- Allowance for a few years of a reasonable (but subsidized) level of earnings.
- A recognition by FAA of the air traffic control problems peculiar to short-haul operation in congested areas.
- Management and governmental resistance to further wage increases not warranted by economic strength.

The following steps must be undertaken:

- 1. CAB must permit reasonable actual earnings for

local carriers based on the actual operating statements and balance sheets of the carrier as relied upon by its stockholders and the investing public, and not as computed after "certain adjustments" by the CAB staff. Such earnings would undoubtedly raise subsidy levels still higher for the next few years, but would at the same time restore the financial community, and permit the carrier to develop its route system aggressively and economically.

• 2. This policy of realistic actual earnings must be accomplished under some form of incentive toward efficient management. This incentive must be related directly to net profits without or after CAB staff "adjustment."

• 3. Local carriers must not ask for route extensions which cannot reasonably be expected to become self-sufficient in the foreseeable future. If currently subsidized services are determined by CAB to be in the public interest they should be so labeled and the subsidy involved should be charged to the communities served. The subsidy "charge" should not be directed at the carrier.

• 4. Subsidy is presently required for all short haul air transport operations, not alone those performed by local service airlines, whether such subsidy be paid by the long-haul passenger or by the government. This overall short-haul subsidy requirement could be substantially reduced by a focusing of airway traffic control attention on the fact that in 1959 more than 50% of all instrument flight clearances were filed for distances less than 200 miles.

For the passenger a 30 minute or one hour delay, caused by circuity or waiting for clearances involves 50 to 100% of his scheduled elapsed flying time, yet this great volume of commuting passengers were generally handled with the same techniques involved in coast-to-coast jet operation, where a similar delay was only 5 to 15%.

• 5. There must come an understanding among all carrier managements, strongly backed by the government, that further wage increases, fringe benefits and reduced working hours for airline employes, particularly pilots, can only be related to earnings, not to non-economic factors.

The reckless disregard displayed by ALPA for the traveling and investing public and for other classes of employes will, unless checked, place the airlines in the same impossible competitive position as the railroads. I consider a strong joint management resistance (backed by the federal government), to further featherbedding demands of ALPA as an absolute must to freedom from subsidy.

Mohawk stockholders face a discouraging picture. Since 1948, it has consistently led the local carriers in the lowest break-even subsidy need, the highest system load factor, the most favorable operating ratio, and last year produced the second largest number of revenue passenger miles on one of the smallest local service route systems. Mohawk was the only carrier to meet every CAB requirement for permanent certification in 1953.

Mohawk was the first local to undertake in 1955 a substantial re-equipment program with pressurized flight equipment, since supplemented by a fleet of brand new Convair 440s. It then undertook a long term financial commitment to build and occupy a large modern maintenance and headquarters plant.

After 13½ years of certificated existence, with the above record, and not including any pre-certificated loss, its earned deficit was $625,000. The current market value of stock listed on the American Exchange is $3.25 per share compared to its original sale price of nearly $4.00 per share. If all Mohawk's past period mail rate claims presently open before the Board were allowed, it would barely wipe out this deficit.

"A great deal more consistency is needed in congress with respect to requesting air service for small communities, while at the same time opposing subsidy to the air carriers who provide it."

Frank W. Hulse, Pres.
Southern Airways

THE large increase in subsidy paid to the local carriers over the last few years can be attributed mainly to new service rather than to higher unit cost. A point not clearly understood by the public and Congress is that it is the public, not the carrier, which benefits from subsidy.

We do not foresee subsidy as a permanent fixture for local carriers. However, if we are to become subsidy free, further improvements must be made in local carriers, route structure and operating authority. To overcome increasing costs and provide reasonably good service to small communities, locals must get more and better traffic generating centers, including longer haul, semi-express type routes within their general geographic areas.

The Board should weigh this carefully, before deciding to add more small, uneconomic cities. It should apply its "use it or lose it" policy strictly and uniformly.

In this connection, a great deal more consistency is needed in Congress with respect to requesting air service for small communities while, at the same time, opposing subsidy payments to air carriers. It must be understood that the small communities which receive air service even though they cannot support it with sufficient traffic, are the actual recipients of subsidy and not the air carriers.

Considerable progress is being made by the Board in the suspension of trunk service at some intermediate points in favor of local carriers. This procedure should be followed and improved upon by awarding the local carriers, in addition to very small cities dropped by the trunks, some larger intermediate cities which have traffic potential.

A major deterrent to locals' progress has been the carriers' inability to attract sufficient capital to invest in modern, efficient, aircraft. This has been caused by the uncertainty of mail pay in the form of subsidy, and the fact that subsidy payments for a particular period are not known until many months later.

The theoretical rate of return authorized for local carriers by the Board, has often failed to yield any net profit and the local carriers have never been able to pay any dividends. This situation has discouraged any real interest on the part of potential investors and has kept local carriers on a "hand-to-mouth" existence without room for experimentation, development and over-all progress.

Reasonable profits must be allowed so that investors can be encouraged to risk their capital and so that a reasonable amount of earnings are available to be plowed into the companies to improve efficiency and reduce subsidy.

I do not feel that subsidy is a permanent requirement. However, there are many improvements which must be made in the local carriers' system by the regulatory agencies, the Congress and the carriers themselves before we reach a subsidy-free operation.

The very concept of providing air service to communities which are unable to support it accepts the fact that the support must come from other communities and citizens either through subsidy payments raised by taxes or through the traffic generating potential of larger, sister communities located within the same economic area. ■

FAA Slowdown Hits Electra Operating Costs

FAA Slowdown Hits Electra Operating Costs

The FAA-imposed slowdown on the Lockheed Electra hit sharply at the turboprop's operating cost record during the second quarter of 1960.

Total operating costs jumped from a high of 168.7¢ for American in the first quarter to 191.7¢ for Western in the second three months.

The effect of speed was evident. Airborne block times, which previously ranged in the 311 to 345-mph class, dropped as low as 273 mph for Eastern with a high of 302 mph for Northwest.

With the slower speed, fuel consumption dropped better than 100 gals. per hour for all airlines. But costs per passenger mile, which formerly had varied from 2.18¢ to 3.88¢ jumped to a new gamut of 3.18 to 5.62¢.

In Vickers Viscount operations, Capital was the low-cost carrier with total operating expenses of only 99.7¢ per revenue plane-mile. Allegheny operation of Eland Convairs continued to reflect the effects of its special lease with Napier and more representative cost information on this aircraft will show up as the carrier introduces its own 540s in October.

In F-27 operations, Bonanza remains the low cost airline with total operating costs of 89.7¢, a decline from the 95.0¢ reported in the first three months. With the exception of West Coast Airlines, all locals showed a slight decline in F-27 costs. Ozark declined from 117.6¢ in the first quarter to 107.2¢; Pacific went from 115.8 to 115.2¢ and Piedmont dropped from 123.3 to 122.1¢.

SECOND QUARTER, 1960, TURBOPROP OPERATING COSTS

Costs in cents per revenue mile *

	LOCKHEED ELECTRA						VISCOUNT			CV-540	FAIRCHILD F-27				
	AAL	BNF	EAL	NAL	NWA	WAL	V-745 CAP	V-812 CAL	V-745 NEA	AAA	BAL	OZA	PAC	PAI	WCA
Crew Salaries, Expenses	32.5¢	28.6¢	35.8¢	26.4¢	24.0¢	25.5¢	22.8¢	21.9¢	19.8¢	17.1¢	21.0¢	22.0¢	21.0¢	23.8¢	21.0¢
Fuel, Oil, Taxes	24.2	22.9	26.3	25.5	22.6	23.2	22.3	25.8	25.0	21.2	15.9	16.8	15.1	18.0	18.0
Insurance	3.5	7.9	8.0	9.1	3.3	9.2	2.8	1.8	6.2	8.6	6.1	6.8	7.2	6.4	5.9
Other	....	....	....	....	.3	....	....	....	....	.4	.2	....	.6	....	....
Total Operations	60.2	59.4	70.1	61.0	50.2	57.9	47.9	49.5	51.0	47.3	43.2	45.6	43.9	48.2	44.9
Maintenance															
Labor	8.4	14.5	16.2	5.9	9.1	5.9	10.0	8.3	10.2	7.0	7.5	16.2	8.2	10.7	9.6
Materials, Other	46.1	44.6	36.1	52.7	28.6	53.8	10.1	13.1	11.1	35.5	9.6	9.2	24.8	17.2	20.0
Reserves	....	4.8	....	1.1	....	8.4	....	1.3	(1.1)	....	12.0	8.3	8.8	14.5	7.0
Total Direct Maintenance	54.5	63.9	52.3	59.7	37.7	68.1	20.1	22.7	20.2	42.5	29.1	33.7	41.8	42.4	36.6
Indirect Maintenance	19.8	17.3	16.2	9.8	12.4	11.2	12.6	8.2	11.2	12.1	8.5	7.5	14.5	11.8	8.3
Total Maintenance	74.3	81.2	68.5	69.5	49.1	79.3	32.7	30.9	31.4	54.6	37.6	41.2	56.3	54.2	44.9
Depreciation															
Aircraft	29.3	26.9	23.5	28.4	22.7	29.2	13.3	12.3	14.0	....	6.6	7.3	9.6	11.7	8.4
Engines	....	7.3	8.5	7.5	6.3	....	3.0	4.2	7.8	....	2.7	....	3.0	3.5	2.8
Parts, Other	4.3	6.0	11.4	5.3	6.9	4.0	2.8	4.3	4.3	1.0	(.4)	13.1	2.4	4.5	2.8
Total Depreciation	33.6	40.2	43.4	41.2	35.9	33.2	19.1	20.8	26.1	1.0	8.9	20.4	15.0	19.7	14.0
Aircraft, Engine Rentals	11.8	....	....	....	....	21.3	....	....	....	13.6	....	....	....	....	....
Total Operating Expenses	179.9¢	180.8¢	182.0¢	171.7¢	135.2¢	191.7¢	99.7¢	101.2¢	108.5¢	116.5¢	89.7¢	107.2¢	115.2¢	122.1¢	103.8¢
Hours Flown—Revenue	20,270	3,755	24,383	7,647	5,640	3,587	46,847	9,461	6,766	551	3,992	1,747	3,162	4,377	4,081
Hours Flown—Training	231	191	592	56	50	44	355	202	52	75	183	40	35	39	18
Hours Flown—Other	126	64	327	28	66	30	261	30	24	19	41	3	47	33	63
Total Hours Flown	20,627	4,010	25,302	7,731	5,756	3,661	47,463	9,693	6,842	645	4,216	1,799	3,244	4,449	4,162
Rev. Utilization	6:48	5:09	6:45	7:00	6:53	6:34	9:12	7:03	7:26	5:24	6:40	6:24	5:47	6:06	7:28
Av. Fleet Size	32.7	8.0	39.7	12.0	9.0	6.0	56.0	15.0	10.0	1.1	6.6	3.0	6.0	8.0	6.0
Rev. Aircraft Miles	5,734,262	1,037,900	6,651,028	2,110,293	1,698,265	1,060,408	11,341,148	2,468,207	1,490,880	129,864	836,165	336,955	640,726	837,167	801,983
Pass Load Factor—1st Class	60.0%	47.4%	51.6%	48.2%	46.2%	52.0%	60.6%	49.1%	70.5%	55.3%	41.7%	46.3%	53.6%	50.2%	51.5%
Pass. Load Factor—Coach	....	58.3	58.3	70.3	60.8	....	59.8	....	44.0	....	....	....	48.6	....	....
Av. Seats/Mile	68.0	75.0	69.2	76.0	77.0	65.7	44.6	53.0	44.0	44.0	38.0	40.0	36.0	36.0	38.0
Av. Pass/Mile	40.8	36.8	36.8	42.8	42.5	34.1	27.0	25.5	32.7	24.3	15.8	18.5	18.7	17.9	19.6
Cost Per Seat Mile	2.64	2.41	2.61	2.26	1.75	2.90	2.25	1.92	2.44	2.65	2.36	2.67	3.20	3.39	2.73
Cost Per Pass. Mile	4.40	4.91	4.94	4.01	3.18	5.62	3.68	3.97	3.31	4.34	5.61	5.25	6.15	6.26	5.29
Av. Flight Length—Miles	502	342	373	373	488	497	315	227	235	241	153	109	131	81	118
Av. Speed—Airborne—mph	283	277	273	276	302	295	243	261	220	236	209	193	203	191	196
Av. Speed—Block/Block	253	249	251	252	274	271	215	239	189	204	187	164	178	157	169
Fuel, Gals./Hr.	640	627	665	666	641	618	458	542	471	375	255	261	264	243	252
Oil, Gals./Hr.	.50	N.A.	.40	.55	.33	N.A.	.10	N.A.	N.A.	.26	.07	N.A.	.25	.08	.04

* Domestic operations only. Source: AIRLIFT research, from CAB records.

Trunk Profits Still Sour, Only $4.3 Million by July

The U.S. domestic trunk airlines, despite a $9.2 million profit in July, have only a $4.37 million record of operating profit for the first seven months of 1960.

Of the 12 trunks, eight edged into the black side of the ledger but the biggest single profit, $3.2 million by United, remains far below what is needed to recover losses earlier in the year.

Through July, American's $10 million leads the industry gains and Eastern's $5.6 million deficit heads the losses.

For the first seven months, half of the trunk industry remains in the red to the tune of $21.2 million, offset only meekly by the $25.5 million profit of the other half.

Here's how individual airlines stand for domestic operations for July and the year to date: Figures denote operating profit or loss in thousands of dollars:

Airline	July	Year to Date
American	$3,056	$10,166
Braniff	541	1,339
Capital	(355)	(5,332)
Continental	947	3,565
Delta	202	5,835
Eastern	(810)	(5,608)
National	(598)	(2,363)
Northeast	(388)	(1,815)
Northwest	965	1,323
TWA	1,804	(4,864)
United	3,216	(1,465)
Western	656	3,579
Total	$9,236	$ 4,370

ON TIME BOXSCORE

June 1960

Airline Ranking	On time to 15 min. late
TRUNKS	
1 Braniff	80.9
2 Western	80.6
3 United	77.1
4 TWA	76.8
5 Capital	73.9
6 Continental	72.1
7 American	70.9
8 Eastern	70.4
9 Northwest	65.3
10 Northeast	64.6
11 Delta	63.8
12 National	38.0
707 & DC-8	
1 TWA	65.7
2 Continental*	59.2
3 American	56.2
4 Western	50.8
5 Delta	50.2
6 Braniff	42.5
7 United	32.4
8 National	23.1
9 Eastern	21.0
10 Northeast	8.6
CONVAIR 880	
1 Delta	02.4
ELECTRA	
1 Western	85.0
2 Braniff	83.8
3 American	63.5
4 Northwest	44.1
5 Eastern	34.2
6 National	19.6
LOCAL SERVICE	
1 West Coast	95.8
2 Piedmont	88.1
3 Central	88.0
4 Lake Central	83.0
5 North Central	82.2
6 Frontier	80.6
7 Trans Texas	78.5
8 Ozark	75.6
9 Southern	68.4
10 Allegheny	68.3
11 Bonanza	63.27
12 Mohawk	63.21
13 Pacific	51.2

*Last month (May, 1960 Boxscore) Capital was incorrectly shown in the No. 2 position, instead of Continental.

Braniff Tops in 'On Time,' TWA Heads Jet Operations

Braniff, Western and United ranked 1-2-3 in overall domestic trunk airline "on-time" performance for June, but fourth-place TWA stole the honors with jets.

Hitting a respectable 65.7% in its 707 operations (jets have been averaging about 50%), TWA led second-place Continental by 6.5 percentage points and third-place American by 9 points.

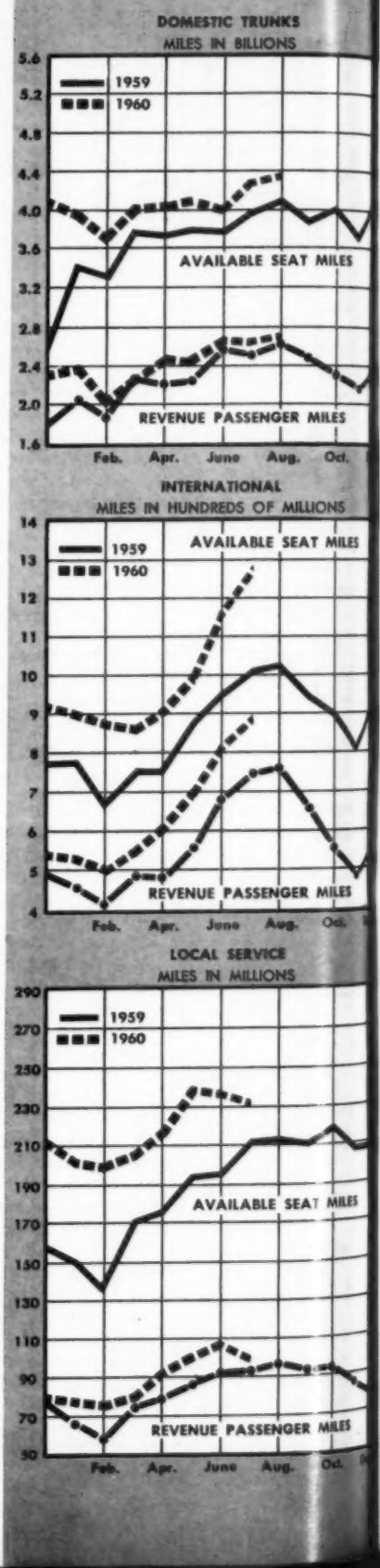
Among DC-8 operators, Delta topped the list at 50.2% followed by United at 32.4%, National at 23.1% and Eastern at 21%. But in its first full month of 880 operation, Delta had a 2.4% record with its 880.

Western Air Lines led the Lockheed Electra carriers with a phenomenal 85% record followed closely by Braniff at 83.8%. Others operating Electras however ranged from 63.5% down to 19.6% in on-time performance.

The local airlines, which have dominated the record in on-time performance since it began, were led in June by West Coast with 95.8% on time within 15 minutes. The first six ranking locals had better than 80% of flights arriving within the allowed tolerance.

Only one of the locals had an on-time percentage below 60, whereas in operation of big jets, only one trunk carrier exceeded 60%.

HOW'S TRAFFIC
Among U.S. Airlines



Trunk Traffic Far Below Expectations

U.S. Airline Traffic for July, 1960 vs. 1959

This complete summary compiled by AIRLIFT Magazine from Official CAB data.

	Revenue Passengers (000)			Revenue Passenger Miles (000)		
	1960	1959	% Change	1960	1959	% Change
DOMESTIC						
American	696	681	2.2	588,783	549,538	7.1
Braniff	183	169	8.3	91,449	75,475	21.2
Capital	302	320	— 5.6	125,764	129,139	— 2.6
Continental	121	103	17.5	90,303	70,484	28.1
Delta	269	249	8.0	144,275	124,369	16.0
Eastern	634	706	—10.2	343,156	388,179	—11.6
National	130	135	— 3.7	80,548	82,510	— 2.4
Northeast	132	120	10.0	48,108	46,584	3.3
Northwest	160	165	— 3.0	121,630	130,817	— 7.0
Trans World	435	447	— 2.7	447,716	434,076	3.1
United	691	648	6.6	526,056	468,844	12.2
Western	153	140	9.3	92,853	81,295	14.2
	3,906	3,883	0.6	2,700,641	2,581,310	4.6
INTERNATIONAL						
American	10	10	...	10,819	10,674	1.4
Braniff	6	5	20.0	13,895	8,434	64.7
Caribair	39	33	18.2	2,770	2,271	22.0
Delta	3	4	—25.0	4,048	5,667	—28.6
Eastern, Overseas	61	46	32.6	90,298	67,506	33.8
San Juan	51	37	37.8	79,146	56,572	39.9
Bermuda	6	5	20.0	5,053	4,309	17.3
Mexico	4	4	...	6,099	6,625	— 7.9
National	4	9	—55.5	3,070	5,553	—44.7
Northwest	19	21	— 9.5	35,974	41,470	—13.3
Panagra	11	11	...	18,198	16,731	8.8
Pan American, System	333	314	6.1	532,246	489,180	8.8
Latin American	120	140	—14.3	149,586	165,119	— 9.4
Atlantic	166	134	23.9	242,366	192,269	26.1
Pacific	39	33	18.2	131,830	124,714	5.7
Alaska	8	7	14.3	8,464	7,078	19.6
Trans Caribbean	N.A.			N.A.		
Trans World	50	43	16.3	159,419	134,343	18.7
United	22	15	46.6	55,113	36,421	51.3
Western	4	5	—20.0	6,491	7,178	— 9.6
	562	516	8.9	932,341	825,428	12.9
LOCAL SERVICE						
Allegheny	62	58	6.9	12,269	10,291	19.2
Bonanza	22	21	4.8	5,547	5,012	10.5
Central	16	15	6.7	2,980	2,844	4.8
Frontier	31	32	— 3.1	8,287	7,971	3.9
Lake Central	19	19	...	3,006	3,000	0.2
Mohawk	52	46	13.0	10,774	9,091	18.5
North Central	88	88	...	16,254	16,260	...
Ozark	47	48	— 2.1	8,532	8,254	3.4
Pacific	46	44	4.5	10,602	9,542	11.1
Piedmont	41	43	— 4.6	8,941	9,369	— 4.6
Southern	8	24	—66.7	1,410	4,167	—66.2
Trans-Texas	26	25	4.0	6,033	6,038	— 0.1
West Coast	37	29	27.6	8,967	5,642	58.9
	495	492	0.6	103,602	97,481	6.3
HELICOPTERS						
Chicago	29	21	38.1	492	370	33.0
Los Angeles	4	5	—20.0	151	182	—17.0
New York	15	12	25.0	290	223	30.0
	48	38	26.3	933	775	20.4
INTRA HAWAII						
Aloha	42	37	13.5	6,551	5,537	18.3
Hawaiian	58	49	18.4	14,537	11,247	29.3
	100	86	16.3	21,088	16,784	25.6
ALASKA						
Alaska	11	12	— 8.3	9,379	12,867	—27.1
Alaska Coastal	8	8	...	736	762	— 3.4
Cordova	2	2	...	486	283	71.7
Ellis	8	8	...	441	462	— 4.5
Nor. Consolidated	4	3	33.3	1,383	1,103	25.4
Pacific Northern	14	15	— 6.7	14,113	14,884	— 5.2
Reeve	1	1	...	1,318	1,299	1.5
Wien	7	7	...	2,561	2,732	— 6.3
	55	56	—1.8	30,417	34,392	—11.6

ALL CARGO

(Ton-miles in thousands)	Freight			Total Scheduled		
	1960	1959	% Change	1960	1959	% Change
AEROMEXICO *	...	...	...	...	...	...
Flying Tiger	5,795,775	7,385,391	—21.5	5,861,640	7,476,087	—21.6
Riddle	N.A.			N.A.		
Slick	...	...	...	...	...	...
Aerovias Sud	467,067	514,969	— 9.3	467,067	514,969	— 9.3
Seaboard & Western	N.A.			N.A.		
	6,262,842	7,900,360	—20.7	6,328,707	7,991,056	—20.8

* Route suspended until further notice.
N.A.—Carriers failed to report by CAB deadline.

Domestic trunk traffic continues to lag behind forecasts, shows no signs of picking up.

First eight months of 1960 total 19.85 billion passenger-miles, a 6.2% gain over the same period last year. Available seat-miles of 32.87 billion are up 9.7%, as more jets go into service. Load factor is down from 62.42% to 60.39%.

Most forecasts had been for passenger-mile growth of about 12% this year, a figure that now looks well beyond reach. Reasons remain somewhat nebulous; some officials point out that general business is on a plateau, and consumer spending is marking time.

In August, coach gains continued to save the day with a 13.3% jump in passenger-miles. First-class travel took its biggest nosedive of the year, down 11.7%. Coach load factor of 69.62% compared with first-class of only 54.69%. Coach went ahead of first-class for the first time in July (*AIRLIFT*, September) when 54.4% of traffic was in the lower-fare service, and showed a slight gain in August to 54.5%.

The August passenger-mile total for both classes of service was 2.72 billion, only 1.1% ahead of July and 0.4% above August a year ago. Seat-miles of 4.4 billion were 7.8% ahead of last year, and load factor dropped from 66.47% to 61.91%.

Following is the trunkline picture month by month since August, 1959:

1959	Revenue Pass.-Miles (billions)	Available Seat-Miles (billions)	Load Factor
Aug.	2.71	4.08	66.47
Sept.	2.50	3.94	63.56
Oct.	2.38	4.01	59.35
Nov.	2.19	3.84	57.08
Dec.	2.37	4.06	58.41
		1960	
Jan.	2.41	4.04	59.59
Feb.	2.14	3.79	56.49
Mar.	2.27	4.07	55.75
Apr.	2.49	4.07	61.23
May	2.43	4.12	59.00
June	2.70	4.05	66.75
July	2.69	4.33	62.11
Aug.	2.72	4.40	61.91

While the industry traffic picture generally is gloomy, jet load factors with but a few exceptions continue to run above these industry averages.

During the second quarter of 1960, for example, National topped the industry with jet load factors of 83.9% in DC-8 coach and 87.5 for 707 coach. Jet first-class load factors ranged from 52.4% for Continental to 79.8% for Braniff, but ranged for most operators in the 70 to 75% bracket.

SECOND QUARTER, 1960, JET OPERATING COSTS

	DC-8				B-707								CV-880
	DAL	EAL	NAL	UAL	AAL	BNF	CAL	NAL	NEA	TWA 707-131	TWA 707-331	WAL	DAL
Crew Salaries, Expenses	18.8¢	24.6¢	17.6¢	22.3¢	24.3¢	20.4¢	18.0¢	18.8¢	15.6¢	25.9¢	27.7¢	26.1¢	19.8¢
Fuel, Oil, Taxes	57.2	58.3	58.1	54.5	49.0	53.7	46.8	61.9	...	43.6	56.8	59.5	52.2
Insurance	17.8	25.4	23.8	13.2	9.5	23.7	7.9	25.6	36.9	15.8	49.2	25.0	31.2
Other	....	....	1.8	.3	....	.1	....	...	...	.1	...	...	...
Total Operations	93.8	108.3	101.3	90.3	82.8	97.9	72.7	106.2	52.5	85.4	133.7	110.6¢	103.2
Maintenance													
Labor	17.0	18.7	10.3	14.9	12.9	7.8	8.9	...	...	9.1	8.1	4.0	13.5
Materials, Other	38.6	17.7	5.7	19.2	27.6	21.3	33.0	...	...	30.7	24.9	15.7	4.8
Reserves	....	.3	22.9	....	....	24.4	(2.7)	...	...	1.4	20.9	72.8	...
Total Direct Maint.	55.6	36.7	38.9	34.1	40.5	53.5	39.2	...	...	41.2	53.9	92.7	18.3
Indirect Maint.	29.5	18.8	16.0	29.4	30.3	9.2	8.8	...	...	16.4	14.6	14.0	22.2
Total Maint.	85.1	55.5	54.9	63.5	70.8	62.7	48.0	...	...	57.6	68.5	106.5	40.5
Depreciation													
Aircraft	27.7	32.3	31.5	27.5	24.7	33.0	20.3	...	...	1.7	36.5	...	31.4
Engines	18.6	9.5	18.5	13.9	9.9	9.6	4.2	...	...	4.9	20.3	...	16.7
Parts, Other	5.3	12.7	4.2	3.5	4.4	4.3	3.2	...	...	4.8	12.4	10.4	11.2
Total Depreciation.	51.6	54.5	54.2	44.9	39.0	46.9	27.7	...	...	11.4	69.2	10.4	59.3
Aircraft, Engine Rentals	....	....	....	....	....	....	....	263.2	311.0	53.6	(19.1)	92.3	...
Total Operating Costs	**230.5¢**	**218.3¢**	**210.4¢**	**198.7¢**	**192.6¢**	**207.5¢**	**148.4¢**	**369.4¢**	**363.5¢**	**208.0¢**	**252.3¢**	**319.8¢**	**203.0¢**
Hours Flown													
Revenue	3,459	2,337	966	13,978	17,755	1,872	4,499	440	423	12,616	997	430	589
Training	18	450	10	867	770	103	149	...	...	64	648	299	327
Other	26	91	4	189	169	15	17	2	...	55	8	22	22
Total Hours Flown.	3,503	2,878	980	15,034	18,694	1,990	4,665	442	423	12,735	1,653	751	938
Rev. Utilization	8:00	4:58	6:35	7:42	8:08	6:34	9:53	6:12	9:12	9:15	5:01	7:11	5:57
Av. Fleet Size	5.5	5.2	1.6	20.0	24.0	3.3	5.0	.8	.5	15.0	2.2	.7	1.1
Rev. Aircraft Miles	1,502,082	1,103,706	457,585	6,468,757	8,454,360	862,422	2,120,706	206,574	194,908	5,965,881	491,675	176,749	279,119
Pass. Load Factor, 1st Cl.	76.8%	75.8%	72.7%	72.7%	70.4%	79.8%	52.4%	74.2%	55.4%	62.7%	74.7%	72.5%	73.6%
Pass. Load Factor, Coach	73.2	72.7	83.9	83.4	80.0	72.7	51.8	87.5	74.8	77.3	82.8	77.7	...
Av. Seats Per Mile	117.2	115.0	128.0	108.2	116.3	106.0	118.0	125.8	134.0	112.0	119.0	112.8	81.0
Av. Pass. Per Mile	87.2	84.3	103.8	85.3	87.0	80.7	61.5	104.0	95.2	80.7	94.9	85.5	59.7
Cost Per Seat Mile	1.96¢	1.90¢	1.64¢	1.83¢	1.65¢	1.96¢	1.26¢	2.95¢	2.71¢	1.86¢	2.12¢	2.83¢	2.51¢
Cost Per Rev. Pass. Mile	2.64	3.01	2.03	2.33	2.21	2.58	2.41	3.55	3.82	2.58	2.66	3.74	3.40
Av. Flight Length, Miles	910	N.A.	1,068	1,238	1,740	738	1,177	1,091	1,091	1,612	1,760	587	1,115
Av. Speed, Airborne, mph	433	472	473	463	476	461	471	469	462	473	493	412	473
Av. Speed, Block/Block	387	423	418	421	442	408	453	418	379	439	442	371	403
Fuel, Gals./Hr.	2,232	2,522	2,780	2,400	2,243	2,540	2,105	2,585	N.A.	2,110	2,360	2,240	2,250
Oil, Gals./Hr.	N.A.	.37	1.02	.48	.37	N.A.	N.A.	.10	N.A.	.38	.30	N.A.	N.A.

* Domestic operations only. Source: AIRLIFT research, from CAB records. Costs in cents per revenue mile.

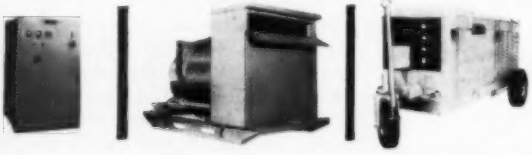
Precision Hi-Frequency Equipment for any POWER REQUIREMENT

At air installations and missile sites across the country and around the world, IDEAL Hi-Frequency Power Supply Units have demonstrated superior performance and dependability.

Custom-engineered to your individual requirements for high-cycle power, these units can be supplied for 400, 800, 1200 and 1600-cycle operation in stationary, portable, and mobile types with appropriate control equipment. Do you need engineering assistance? We will gladly help!

For Complete Details, Write for Bulletin 500

Above: 60 kva, 48 kw, 1200 rpm, 400-cycle portable unit for hangar, ramp and runway operation. Right: 25 kva, 20 kw, 1200 rpm, 400-cycle set with control supplied as packaged unit for stationary or portable use.



The IDEAL ELECTRIC & MANUFACTURING COMPANY
351 East First Street Mansfield, Ohio

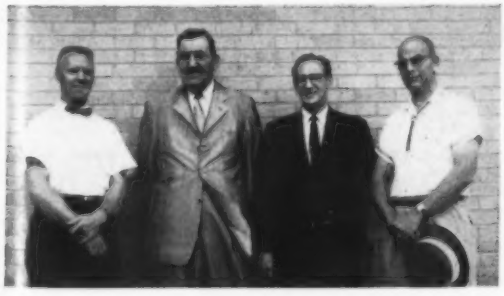
SINCE 1903, MANUFACTURERS OF PRECISION MOTORS, GENERATORS, MOTOR-GENERATOR SETS, SWITCHGEAR AND CONTROLS

Show Place for General Aviation

(Left) William O. Coleman, for the past nine years Airport Manager of the Department of Airports, Oklahoma City. Under his planning and instruction, a dream became a reality. (Right) Maurice A. Marrs (Brig. Gen., USAF, ret.), Supervisor of Tulakes . . . an active pilot with 22,000 airline and ATC hours.

Tulakes Air Terminal Building, Oklahoma City . . . undoubtedly one of the finest devoted exclusively to general aviation.

Customers benefit from keen rivalry between Tulakes' two operators. Service with Phillips 66 mobile refuelers is thorough.



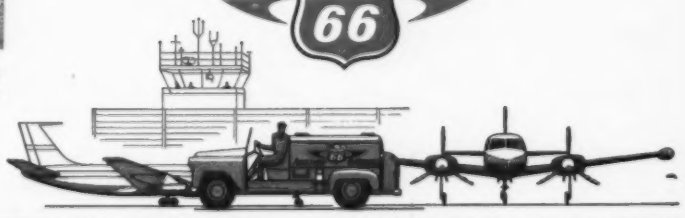
Friendly competitors: (left to right) Bob Burke and Roy Aitken of Sky Service . . . Norm Blake and Johnny Johnson of Air Sales.

Around Oklahoma City, general aviation is in good hands . . . thanks to the model facilities and efficient services provided by Tulakes Air Terminal. Devoted exclusively to personal and business aircraft—this municipal field boasts two asphaltic concrete runways (5800′ and 4565′), 14,500 feet of well-planned taxiways and a new air conditioned terminal building that houses, among other things, FAA Weather and Safety Offices, car rental agency, lounge, and a restaurant famous for its steaks. Downtown Oklahoma City is 8 miles away . . . excellent motels with courtesy cars are even closer.

Tulakes tower operates LF, VHF, and UHF from 0600 to 2200 . . . runways and tetrahedron are lighted all night. Until the ILS system is installed sometime in 1961, IFR approaches are authorized via Oklahoma City Omni using Tinker Field Radar and Will Rogers ILS.

In addition to being the home of Aero Commander, Tulakes has two fixed-base operators—Air Sales, Inc. (Beechcraft) and Sky Service Company (Cessna). Both provide 24-hour service—charter, flight training, sales, major and minor repairs . . . and complete refueling service with 80-, 91- or 100-octane Phillips *66* Aviation Gasoline. Other facilities include tie downs, transient hangars big enough for DC-3's, and crash-fire-rescue equipment manned around-the-clock. *No landing fees!*

PHILLIPS 66



AVIATION DIVISION • PHILLIPS PETROLEUM COMPANY • BARTLESVILLE, OKLAHOMA

Now, rocket cases up to 20 feet without a single seam

Pratt & Whitney Aircraft now has a metalworking technique for producing rocket cases up to 20 feet long and 80 inches in diameter—without a single weld. The process is called flow-turning. It spreads and forms even the hardest metals into precise shapes and sizes.

Seamless, flow-turned rocket cases and jet engine parts are stronger, lighter and more economical to produce than welded parts. Moreover, the process of flow-turning itself increases the metal's tensile strength.

Flow-turning is among the many advanced precision manufacturing skills that Pratt & Whitney Aircraft engineers have pioneered and refined. It plays an important role in the design and development of dependable power for flight.

Pratt & Whitney Aircraft

EAST HARTFORD, CONNECTICUT/A DIVISION OF UNITED AIRCRAFT CORPORATION

TECHNICALLY SPEAKING

By Joe Murphy

Recorder-happy FAA hurts locals . . . Films help jet mechanics . . . Congo boosts Caribou

Recorders for what?—We're still shocked by the total lack of realism displayed by FAA in its imposition of the flight recorder rule to local airline turbines. It amounts to a $10,000 per airplane fine for no offense whatever. Another healthy $500,000 added to the subsidy bill without a Chinaman's chance of ever getting a return for it.

The locals have had only two accidents of any consequence in the equivalent of 154 airline/years of operation and if FAA and CAB need a recorder to help with that meager a workload, we ought to be looking for a new agency to handle safety investigation. Why not require recorders in all executive F-27s? It would be just as ridiculous. Their safety record is perfect, too!

Films for maintenance—Pan American's Overseas Division is doing a good job in filming the step-by-step process of trimming a jet engine for repeat use by mechanics at outlying stations. It's the first of about 18 jet maintenance operations Pan Am will film through Coleman Productions, New York. Among others planned are the purging of contaminated hydraulic systems, engine temperature spread checks and a variety of accessory replacements. They will be made available to other airlines, for a fee, of course.

Anti-ingestion guard—Pan Am has devised a jet engine inlet guard to prevent the ingestion of mechanics during ground work. An incident at Boeing proved it can happen! PAA calls it the "purple people catcher."

Caribou in the Congo—Although the aircraft's name obviously didn't contribute much, deHavilland Canada may get its biggest break in acceptance of the DHC-4 Caribou from the Congo situation. The total absence on the African scene of an airplane with good shortfield performance reportedly is what led to the speedy order from the RCAF for four aircraft. We hear the contract was negotiated and signed in about six days!

The Caribou, by the way, has just received its final approval from the Canadian Department of Transport, a factor that should enhance its sales potential among feeder airlines around the world.

Slowdown costs plenty—For those who have any doubts about the importance of expediting the Lockheed Electra program, a look at the effect of the FAA-imposed slowdown on operating costs will clear things up in a hurry.

From the first to second quarters of 1960, costs have jumped anywhere from 6% to 39% for various operators —American 6%, Braniff 21.4%, Eastern 39%, National 17.8% and Northwest 25.5%. For latest costs, see statistics on page 49.

No more squares—If you're planning a new airport control tower, don't make the same mistake that has turned that fancy Newark tower into a nightmare of reflections for controllers. Subsequent FAA study shows the tower glass cage should be octagonal to get the nearest to ideal results. At Newark it's square.

NEWARK'S TOWER is fancy, but square ATC cab provides nightmare of reflections.

Dave Thomas of FAA tells us everybody knows a lot about what causes reflections in glass but he's still looking for somebody who can do something about it.

Retreads and jets—Vernon Sanders, president of Thompson Aircraft Tire Co. tells us his firm has completed its 5,000th retread for 707 and DC-8 tires of 18 different airlines. Jet retreads now account for 30% of Thompson's output for airlines and the company expects to handle 10,000 jet tires during 1961 alone.

Noise from consultants—It's about time the FAA or somebody called in the Bureau of Standards to explode the myth of the PNdb noise measurement system concocted by Bolt, Beranek & Newman to confuse the jet noise picture.

We're for ex-FAA planner Bart Spano in his testimony before a Congressional committee on the unscientific aspects of the PNdb (we often think of it as Port of New York decibels). People who should know tell us there never was any justification for its introduction. There is only a 2 db difference between it and the phon system of noise measurement.

Headline of the month—The publicity boys really get carried away at times and the press release that caught our eye most recently was the one headed "BOAC to Inaugurate Rolls-Royce 707 Service to Caribbean." Boeing wasn't overlooked entirely, though, it made the fourth line of the text.

Reminds us of the 707 inaugural ceremonies at Baltimore during which the name Boeing wasn't mentioned once and you couldn't find it anywhere on the airplane either. We think airline sales and pubrel people could give aircraft and engine builders a little better break in this area.

True, they get paid for their wares, but brand names sell, why not use 'em.

Are you unknowingly flying second class in your own aircraft?

Many custom interiors *appear* to be of the highest quality until drawers and doors no longer seem to fit, fabrics begin to work loose or wear thin, colors almost imperceptibly begin to fade, seating and movement inside the aircraft becomes awkward and uncomfortable, and many weaknesses in basic design begin to be noticed.

Beneath the beauty and graciousness of any quality custom interior there must be good basic design. And good basic design requires outstanding engineering of a very specialized nature, fully integrating carefully engineered furniture and fittings into the framework of the aircraft.

AiResearch's extensive leadership and experience in the modification of all types of airframes and aircraft systems insures maximum integration of individualized interiors into the structure of the aircraft. This over-all capability, combined with good basic design, is also of vital importance to the safety and performance of the aircraft as well as to the beauty, comfort and durability of the interior.

Every AiResearch Aviation Service custom interior is built to retain its high quality for the lifetime of the aircraft. This is possible only because AiResearch employs the most skilled and experienced craftsmen in the industry and uses only the finest materials for the most rugged, lightweight construction throughout.

There is no production line at AiResearch Aviation Service, and no two interiors are alike. Every piece is hand finished by an expert craftsman with a genius for detail. And the internal construction and fitting of each piece is equally exacting. There is no compromise, and nothing is left to chance.

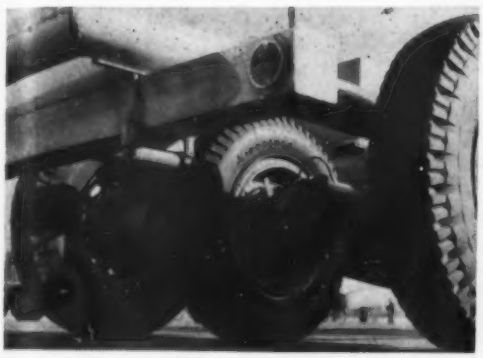
Before *you* should unwittingly decide to fly second class in your own corporate airplane, we urge you to check into the AiResearch Aviation Service Company reputation and facility to see for yourself how the finest interiors in the world are made.

Customer confidence is our most highly regarded asset

THE GARRETT CORPORATION AiResearch Aviation Service Division

International Airport, Los Angeles, Calif. / Telephone: ORegon 8-6161

SAS 'Go-Cart' Tests Icy Runways



The size relationship between the three wheels on the SAS "skiddometer" shows in this closeup view.

The "Go-Cart" trailer can be towed behind any available large truck at 60-70 mph, as shown in this photograph taken at the Stockholm airport.

By DANNA KUSIANOVICH

An ingenious "skiddometer" developed by Scandinavian Airlines System to measure braking action on icy runways is receiving a close look from FAA in connection with the current study of possible standards for slush-ice-water operations.

Though its use thus far has been relatively limited, SAS told *AIRLIFT* that the $2,000 "go-cart" has proven especially valuable at Stockholm's Bromma Airport, where jet operations from a 6,500-foot runway demand detailed knowledge of braking qualities in bad weather.

The "skiddometer" is a three-wheeled, tubular steel trailer which can be towed behind any large truck. It was designed by G. Kullberg of the Swedish Road Research Institute at the request of Swedish civil aviation authorities. It utilizes the principle that the braking force obtainable from a given runway surface is equal to the coefficient of friction between tires and runway, and that friction coefficient is a function of slip.

Center wheel smaller

The center wheel on the trailer is smaller than the other two, and thus when the three wheels are locked together the middle wheel slips at a known rate of about 17 percent. Peripheral force exerted on the small wheel is transmitted to the shaft by an arm, and the bending stress in the arm is measured by a strain gauge which records the friction value on paper.

In operation, the trailer is simply towed down the runway at a speed of 60 to 70 miles per hour. Three measurements are usually made—along the center line and 50 ft. to either side. Total time consumed for a complete test, including evaluation of graphs, is about 15 minutes.

SAS uses the terminology "good," "medium" or "poor" in transmitting braking information to pilots. "Good"

WORLD SPEED RECORD

SET IN

CONVAIR F-106A

WITH

INSTANTANEOUS VERTICAL SPEED INDICATOR

SPECIALTIES, INC. IVSI*
3000 or 6000 Ft./Min.—Dull White or Phosphorescent Dial Markings.

INSTALLATION

"The instantaneous vertical speed indicator provides the most valuable information a pilot can be given to maintain a constant altitude or a given deviation in altitude with excellent readability and proper resolution. The pilot's performance during these record runs in maintaining level flight improved 50% upon installation of the IVSI* in the F-106A."

CONVAIR

ALSO INSTALLED IN

AMERICAN AIRLINES JET FLEETS

AND HUNDREDS OF

CORPORATE AND PRIVATE AIRCRAFT

Write for IVSI* details to:

Continental Development Corporation

*TRADEMARK

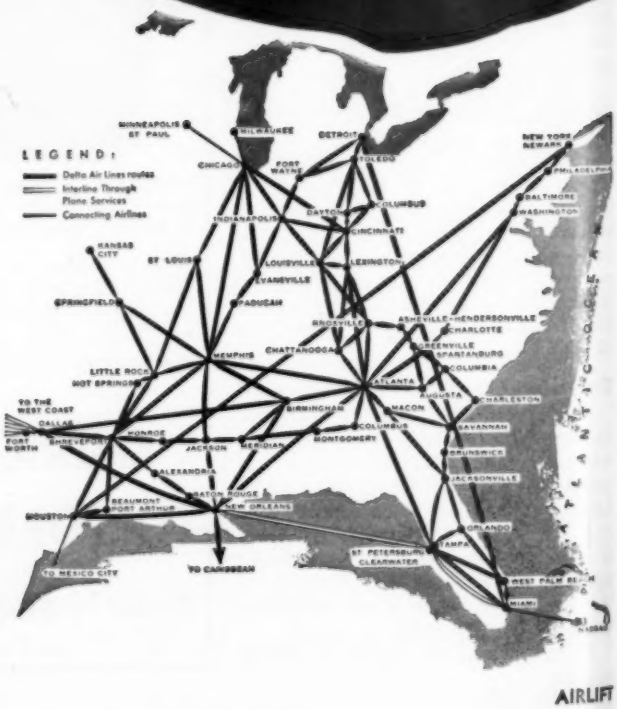
P. O. Box 511, Ridgefield, Conn.—IDLewood 8-6964

To put it all in a jet pod...

DELTA is the JET LEADER to and thru the SOUTH

Delta was first with DC-8 or Convair 880 Jets over all routes served... and today offers up to 3 times more jet service than any other airline. Only Delta flies all 3 U.S.-built Jetliners...

Convair 880 Douglas DC-8
Boeing 707



DELTA
the air line with the BIG JETS
GENERAL OFFICES: ATLANTA AIRPORT, GEORGIA

denotes a coefficient of 0.40 or above, "medium" is 0.25 to 0.40, and "poor" is below 0.25. "Medium" is usually divided into three categories: medium, medium-to-good, and medium-to-poor.

Since conditions along the runway usually vary, the pilot is given braking data for each third of the runway length.

SAS reports that the "skiddometer" offers a number of advantages over other methods of measuring braking action:

1. A continuous record of the entire surface is obtained (the graph paper is fed by the rotation of the left supporting wheel, so a given length of runway is always represented by a constant length in the graph).

2. Runways need be blocked for only two to three minutes at a time.

3. Training of personnel is simple, and labor costs are low.

4. The towing truck is not subjected to abnormal wear, as is the case in other methods such as use of an accelerometer.

Results may vary

There are, of course, limitations to the device. SAS points out that it is difficult to extrapolate the results of any testing procedure to aircraft with differing tire pressures and wheel arrangements.

In addition, the "skiddometer" cannot operate at speeds high enough to produce a useful measurement of braking action on wet runways—which often are more hazardous than runways covered with ice or snow.

The value and feasibility of the "go-cart" must be determined on an individual airport basis, SAS believes, based on number of tests required and traffic density. Bromma Airport officials feel the expense of the device is justified because the icy season there lasts three to four months.

New Reports Available

Air Commerce Traffic Patterns, prepared by the Federal Aviation Agency and available at 35¢ through the U.S. Government Printing Office, Washington 25, D.C. Includes 1959 traffic statistics for large, medium and small hubs (airports) and contains passenger/cargo growth information from 1948 to 1959.

Handbook of Airline Statistics, a 276-page Civil Aeronautics Board staff compilation, available from the Government Printing Office at $1.25. It contains traffic, balance sheet and profit/loss data for U.S. airlines from 1949 through 1956.

Research
Responsibility
Results
FROM SATELLITES TO
SAFETY HARNESS . . .
Aerotec Industries' products are helping aviation to set new performance standards. The Aircraft Equipment Division produces advanced controls and disconnects for aircraft, missiles and nuclear applications. The Aerotherm Division, pioneer in the application of Energy Absorption (E/A)* to aircraft seats, manufactures all types of seating. The Industrial Division produces equipment for the cleaning, control and handling of gas and air.
*Trademark
AEROTEC INDUSTRIES
INCORPORATED
EXECUTIVE OFFICES • GREENWICH, CONN.
Plants at Bantam, Greenwich and So. Norwalk, Conn.
Canadian Affiliate: T. C. CHOWN LIMITED, Montreal and Toronto
AEROTHERM DIVISION • AIRCRAFT EQUIPMENT DIVISION • INDUSTRIAL DIVISION

PILOT TALK

ALPA Fate Rests With Electorate

By J. F. LARSH
Contributing Editor

Major carrier negotiations now in process or about to start are going to be extremely difficult because of the crew complement problem. United, Delta, Braniff and Continental are flying turbo-jets with a three-man cockpit while Pan American, Eastern, TWA and American have a four-man crew.

The four-man crew companies appear to be united in determination to win a three-man crew from the current round of negotiations. The Delta-American interchange is an example of the situation they find themselves in. Delta and AA have a DC-8 interchange at Dallas/Fort Worth. Delta flies the aircraft into Dallas/Fort Worth with a three-man crew; AA continues the same airplane to the west coast with a four-man crew.

This costs American approximately $16.00 per hour more for crew costs. Management's attempt to reduce the number of crew members at the same time they are furloughing is going to be difficult to sell to pilots.

The FAA's power must be checked. However, no one's memory should be so short as to forget that before the FAA existed there were so many checks and balances and such lack of authority that it took 20 months before the CAB granted approval of the present anti-collision light. There certainly must be a happy medium.

ALPA presidential election will be held this November at ALPA's Miami convention. To date, it appears that there will be two candidates: Mr. Sayen (now president) and Judge James Landis. Judge Landis probably knows his way around Washington better than anyone the pilots could choose. His backers are depending upon this to solve some of their knotty problems with FAA and CAB. ALPA has antagonized the FAA to the point where pilots have suffered considerably. Almost all encounters with FAA have been lost.

Other problems faced by a new president will be of considerable magnitude. Briefly, they are:

1. Jurisdictional matters between pilots and flight engineers and pilots and stewards and stewardesses.
2. Modernization of ALPA Constitution and By-laws.
3. Clean up of airline pilot working agreements to reflect hard and fast rules which can be easily understood by the membership.
4. Elimination of all unnecessary committees which have been appointed

BOUNDARY LAYER BREAKTHROUGH

New BLC-130 takes off or lands in five times its own length

for political purposes.

5. Stabilized employment.

It is interesting to note that the pilot membership will not vote. ALPA By-laws provide for the president to be elected by the board of directors (296 total members) who are elected to this position by pilots. This would be the same as Congress electing a President.

Even though a director is mandated by his pilots to vote in a certain manner, under the ALPA By-laws he is not required to follow this mandate. This means that the board of directors are subject to the politicing of the convention.

This gives Mr. Sayen a great advantage because his campaign team consists not only of appointed committees but of ALPA staff negotiators and lawyers. These latter are in constant contact with the members of the Board throughout the year while working on grievances and negotiations. Since Mr. Sayen is the staff members' direct boss and controls hiring, firing, promotion and salary, it is obvious that they are constantly trying to better their position with the "boss."

This makes one of the most effective campaign organizations a union president can have. Every attempt to upset Sayen's machine in the past has failed. Whether or not Judge Landis and his backers can overcome Sayen's tremendous political advantage will be interesting to watch.

Flight attendants are confused as to who their officers are. Their elected officers severed relations with ALPA on August 6th. ALPA officers said they couldn't do this so they appointed themselves as officers of ALSSA. The result is members are getting no representation while these two groups fight for control.

At this writing, Sayen has taken ALSSA to court six times and lost every time. At first, he used ALPA staff attorneys to represent him. It appears that, due to their failures, he has hired two expensive Chicago firms for this legal battle. All of this at the expense of the pilots and the flight attendants.

Sayen's plan is to make all flight attendants voting members of ALPA. Many pilots look upon this as dilution of their representation and a violation of their Constitution and By-laws. A complaint has been filed with the Labor Department regarding this.

The ALSSA-ALPA feud was aggravated further by the fact that ALSSA has signed three contracts below the long established 85 hours maximum monthly flight time, and at the same time obtained five 48 hour periods minimum free of duty and increased take-home pay. This is something that Sayen's administration told the pilots could not be done "even with all the resources of ALPA."

Eastern pilots are faced with a difficult situation. They are being sued by their management over the recent strike (FAA dispute). Also, they are in the process of taking a strike vote due to a breakdown of negotiations. At this same time, some of their councils are supporting Landis against Sayen for ALPA president. Landis supporters have publicly said that Sayen is not capable of properly handling their problems. If Landis is elected, they hope the solution to many heretofore unresolved issues will be forthcoming.

Pilot-engineer craft and class hearing before the NMB which was requested by ALPA will cost ALPA about $100,000 and FEIA $75,000. Final briefs are due on October 15. It is reported by a reliable source that the National Mediation Board will never rule on this issue. Total costs to date (for both unions) in the ALPA/FEIA feud are estimated at $2,600,000.

---

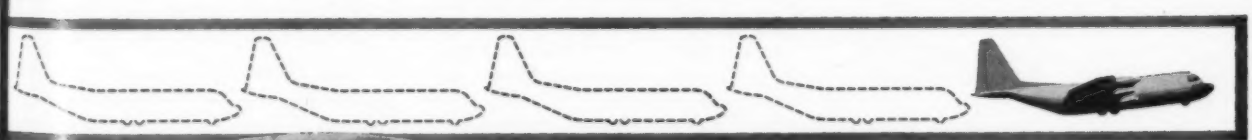
magine a 50-ton Hercules airfreighter lifting off in just 500 feet, om a standing start on an unprepared field. Or picture the big rop-jet stopping after touchdown in 520 feet. This performance f Lockheed's Boundary Layer Control C-130, at mid-point of a 000-mile round trip mission, is truly remarkable. But its signifi- nce goes far beyond the spectacle itself.

he BLC-130 brings true STOL capability to Air Force support issions. Whether it has to rush 92 combat troops to a spreading ush-fire fight, or airlift 18 tons of food to some remote hunger spot, the huge airlifter will be able to deliver its payload closer to the action than ever before possible.

A test bed BLC-130 has completed advanced flight tests, clearly illustrating the feasibility of boundary layer control on big planes.

LOCKHEED

GEORGIA DIVISION MARIETTA, GEORGIA



High speed air—supplied from pylon-mounted turbojet compressors and blown over flaps, ailerons, elevator, and rudder—causes the airstream to hug the surfaces instead of being separated from them. The energization of this boundary layer of air gives the BLC-130 its extraordinarily high lift.

Wayne Parrish *Reports to the Travel Industry:*

"Let's Explore LIMA!— for the travel gold in the ancient Inca diggin's"

Anytime you start to sell a trip to South America, you are likely to wind up selling a city. This is a wonderful idea, especially if you start out by selling Lima.

No matter what kind of a prospect you get hold of, you can find something that will bring his checkbook out of his pocket in about two minutes after you start talking about Lima. People who like romantic history could

Lima's shops abound in the exotic and beautiful—in textiles, silver, many alluring items.

get the feeling they were living in the middle of a historical novel when they find themselves loose in Lima.

For this is the place where Pizarro and his conquistadors, only 600 men, took over from the Incas a whole Civilization "cast in gold." There isn't as much gold in Peru as there used to be, but its place has been taken by silver, and women travelers can completely satisfy their desires for beautiful silver objects in the silver market on Union Street.

The camera fan can satisfy any type of artistic urge he has. This is true whether he wants to photograph the riot of flowers in the Flower Market, record the archaeological wonders of nearby ruins, or take home pictures of the Indians in their picturesque garb. (The legendary felt hats of the women and the gorgeous embroidery they wear are good for about two rolls of film per tourist.)

Of course, there's the simple luxury-loving types, who like to live swathed in velvet, eat the creations of inspired chefs, savor the world's exotic drinks. You've got these people in the palm of your hand, too, when you sell Lima. Its three really fine hotels and many good restaurants provide a native cookery the French would admire, paralleled by superb drinks based on every beverage from native Pisco brandy to the greatest imports.

No trip to Lima would be complete, of course, without side tours to Cuzco and Machu-Picchu, the ancient fortress of the Incas. This is the place where engineers have the time of their lives figuring out how a highly advanced civilization (that still didn't know the secret of the wheel) managed to set up the monumental stone blocks that form this fortress-palace.

Special happy note: Lima is one city where it practically never rains. Yet, due to unusual mist-bearing air currents, it is not a dry or "desert-like" climate.

It is not so far from Lima, of course, to wonderful Pacific seabathing, and the city itself is almost like a stage setting with its magnificent old palaces.

Speaking of stage settings, Lima is one of the very few places in the Western Hemisphere that was the setting for an opera. The story of the opera, "La Perichole," is based on actual people and events in the Lima of 200 years ago.

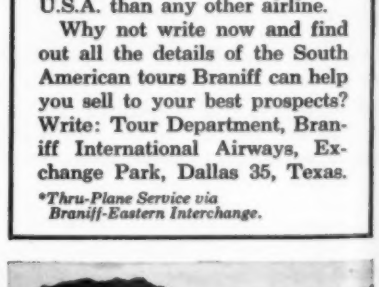
So when you sell Lima, you sell everything. You sell the thrill of faraway places, the pleasure of the most modern luxury hotels, the romance of history, and all the features that make a tourist truly happy. What more could you ask? If any person won't buy this, he doesn't really want to travel!

Braniff's great 707-227 Boeing jets waft a tourist from New York over-night*. The addition of these beautiful El Dorado Super Jets gives the traveler practically an extra day on a South American tour.

Lima is only one of the great South American cities Braniff serves. As a matter of fact, Braniff serves more major cities in South America and the U.S.A. than any other airline.

Why not write now and find out all the details of the South American tours Braniff can help you sell to your best prospects? Write: Tour Department, Braniff International Airways, Exchange Park, Dallas 35, Texas.

**Thru-Plane Service via Braniff-Eastern Interchange.*



Indian costumes in Peru remain living reminders of the days of the Inca Empire.

Serving more major cities in the U.S.A. and South America than any other airline.

BRANIFF *International* **AIRWAYS**

ABOUT PEOPLE

FEEHAN

WRIGHT

MONTGOMERY

OERTEL

IN THE AIRLINES

R. J. Wright, who has been Northwest's sales mgr. in Minneapolis-St. Paul, named gen. sales mgr. He succeeds **Gordon M. Bain,** who resigned recently as v.p.-sales, as head of the sales dept. NWA abolished eastern and western regional sales offices, and **Frank Coufal,** western sales mgr., becomes domestic sales mgr.

Harry Feehan, formerly with ACF Industries, named TWA's director of labor relations. **Floyd Yeager,** deputy director of military airlift program, appointed director of new military transportation dept.

Alfred H. Norling resigned as Capital's v.p.-economic planning to become director of air transporation for United Research Inc., Cambridge, Mass.

Ray North resigned as TWA's supervisor of aircraft engineering and structures to form his own metal parts manufacturing company. He was with the airline 20 years.

J. G. Maxwell, 21-year veteran with Trans-Canada, named to new post of overseas sales mgr., based in London.

R. B. Rothrock, former special asst. to v.p.-operations, appointed supt. of dispatching for Eastern, succeeding **Norm Scully,** retired.

John M. Clampitt promoted by United to director of advertising, succeeding **E. A. Raven,** who plans to enter agency advertising. **W. A. Looney,** southwest region personnel mgr., named UAL's supt. of stewardess service.

Alvin Pickering, formerly with Hiller Aircraft, heads Pacific Air Lines' new production control dept.

American named two specialists to direct development of its Sabre electronic reservations system: **Perry Moskowitz,** mgr. of systems analysis, and **Malcolm Perry,** mgr. of programming.

Millard Atherton promoted by SAS to personnel mgr. for North America and northern Latin America.

George Hunt, with Continental 14 years, named director of ticketing and terminal counter services, a new post.

Preston Wilbourne promoted by Piedmont to director of tariffs and schedules, and **Robert McAlphin** to mgr. of space control.

AMONG THE SUPPLIERS

John B. Montgomery, gen mgr. of General Electric's Flight Propulsion Div., appointed v.p. **A. T. Cavanaugh** named European technical services mgr. in Geneva, and **C. R. Bullock** mgr. of southwestern district, Dallas. **Arthur R. Taylor** appointed mgr. of customer operation analysis for GE's commercial engine operation, and **Robert J. Westerheid** named mgr. of service engineering and flight test.

Wright A. Parkins retired as v.p.-engineering and board member of United Aircraft. **Erle Martin** named v.p.-research and development, which includes engineering responsibilities. **Wladimir Reichel,** chief of Norden Div. basic design and engineering mgr. of Ketay dept., appointed engineering counsel to all divisions.

Robb Oertel has retired after 25 years as aviation sales mgr. of Esso, now a division of Humble Oil & Refining Co.

New assignments in Douglas Aircraft's engineering dept.: **Schuyler Kleinhans,** director of advanced engineering; **Charles R. Strang,** chief engineer, transport aircraft.

Victor Kostuck, asst. to president of Leach Corp., elected v.p.

Alfred M. Esberg, west coast industrialist, elected to board of Greer Hydraulics, named chairman of new executive committee and appointed gen mgr. Vacancy created by resignation of **John Cain** as president will remain unfilled for the present.

Harold J. Downes, with Lear since 1956, appointed director of international operations.

Harry S. Pack, former head of international div. of Vertol Div. of Boeing, appointed director of customer relations, a new post.

Max Elbaum, former research engineering director of Flight Enterprises, named chief modification engineer of L. B. Smith Aircraft.

Clinton B. McKeown promoted from gen. mgr. of manufacturing to gen. mgr. of B. F. Goodrich Aviation Products Div.

Raymond W. Fischer named head of commercial sales activities of Lockheed Aircraft Service at Oakland, Calif., base.

Edward H. Higgins, former chief engineer-aircraft of Canadair, appointed v.p.-engineering, succeeding **W. K. Ebel,** recently transferred to General Dynamics' Washington office. **T. A. Harvie** named chief engineer-aircraft, **F. C. Phillips** appointed director of research and development.

IN THE AGENCIES

Lucius W. Burton resigned as acting director of FAA's Bureau of National Capital Airports to become Ft. Worth's director of aviation, a $22,000 a year post.

George C. Prill, former mgr. of Convair's European office, named deputy director of FAA's Bureau of Flight Standards.

Col. Aldro Lingard, USAF, appointed acting chief of test and experimentation div. of FAA's Bureau of Research and Development, Atlantic City.

FPD NEWS

Published by the Flight Propulsion Division of General Electric in Cincinnati, Ohio / OCTOBER, 1960

FPD NEWS offers latest information on openings throughout the Division to interested engineers and scientists. Technical information and news relating to current projects will also appear from time to time in this column.

Commercial Engine Programs Spotlight Opportunities in Customer Service

Flight Propulsion Division's growing commercial jet engine business is sparking expansion of dynamic Customer Support Teams.

Organized on a 1 to 1 basis for each airline flying G.E. powered Convair 880's, a typical team consists of a key man and a factory group at the Evandale plant, and an Airline Engineering Supervisor with his field group at airlines headquarters, maintenance stations and overhaul facilities.

Keeping the customer's aircraft in operation often calls for fast application of intense engineering ingenuity, particularly when unexpected service problems arise. As a result, our units have the organizational flexibility, authority, and open-line communications necessary to get the job done.

Positions Open on New Teams for Engineers Experienced in:

Airline Service Engineering • Engine Maintenance Operations Engineering • Marketing

Openings in other FPD groups call for experience in:

Rocket Engine Development (liquid & solid) • Electrical Space Propulsion • Space Power Generation • Liquid Metals • Chemical-Metallurgical • Engineering Computations • VTOL • Large Jet Engines - military, commercial, industrial & marine

Write informally, or forward your resume in confidence to Mr. Mark Peters, Dept. 136-J, Bldg. 100.

FLIGHT PROPULSION DIVISION

GENERAL ELECTRIC

CINCINNATI 15, OHIO

French SFERMA Keen on U.S. Methods

Bordeaux base, one of Europe's largest, has been overhauling U.S. aircraft for more than ten years. Latest deal involves United's DC-6/7s

by Anthony Vandyk

BORDEAUX, FRANCE—American transport aircraft are a specialty of SFERMA, one of Europe's largest overhaul, repair and conversion organizations. A subsidiary of Sud Aviation, SFERMA (Societe Francaise d'Entretiens et de Reparations de Materiel Aeronautiques) is involved in the agreement under which United Air Lines is buying 20 Caravelles.

SFERMA will convert to all-cargo aircraft a number of DC-6s and DC-7s which UAL is disposing of as part of its deal with Sud.

For SFERMA, Douglas equipment is not unknown. Since 1948 its shops in Bordeaux have been one of Douglas' two authorized overhaul and repair facilities in Europe. SFERMA has worked on DC-3s, DC-4s and DC-6s as well as Douglas B-26 bombers. Among its customers has been the USAF.

Most overhaul contracts come from the French government and involve work on military aircraft. However, the company performs extensive work for commercial customers, notably airlines in the French Commonwealth. There are few types of aircraft it has not worked on.

Since the formal establishment of SFERMA in 1949 (previously the facility was operated by the now defunct aircraft company SNCASO) some 1,500 aircraft have been overhauled, repaired or converted at Bordeaux. The largest contracts have involved the French SO 30 and SO 95 transports but SFERMA has also carried out work on large numbers of such different types as the Boeing 307, Consolidated B-24, North American T-6 and Curtis C-46.

Specialist on crashed aircraft

While most of the work has been carried out at the main shops at Merignac Airport, Bordeaux, SFERMA specializes in repairing aircraft that have crashed in remote areas. Contracts involving work of this type have taken SFERMA crews to Africa, Indochina and Lebanon. The French company currently has a USAF contract for recovery and repair of all types of crashed aircraft.

The well-equipped shops with 1,000 workers can take on any type of aircraft overhaul or repair.

The Bordeaux facility also manufactures components for aircraft. At the two SFERMA shops in the Paris area, (Neuilly and Villacoublay) the government-owned SO 30 transports belonging to the French Flight Test Center and the government's civilian communications air transport unit are maintained, and maintenance and service equipment for the Caravelle is manufactured.

A particular specialty of SFERMA is upgrading the performance of existing aircraft. The first program of this type involved fitting Turbomeca auxiliary jets to the C-46, the DC-3 and the SO 30. Cooperation with Turbomeca and SFERMA's long experience

FRENCH BASE at Bordeaux has overhauled, repaired or converted more than 1,500 aircraft since establishment in 1949.

with Beech aircraft (a contract for the French Air Force involved converting UC-45s into D-18s) was partly responsible for SFERMA's decision to re-engine Beech Models 18 and 95 with Turbomeca turboprops. The first Model 95 travel-air powered by two Turbomeca Astazou turboprops flew this summer and SFERMA expects wide acceptance of the turbine-powered aircraft. Performance is excellent. Rate of climb is more than 3,000 ft./min. and top speed is 335 mph.

Prior to the conversion of the Beech Model 95, SFERMA re-engined two D-18s in 1958 and 1959 and a third conversion of this type was completed this summer. Other aircraft that have been re-engined with Turbomeca turboprops are the Holste MH152 utility transport and the Nord 1100.

Although SFERMA does not overhaul piston engines it has a fully equipped overhaul facility for Turbomeca turbine engines with full test facilities. About 50 engines are overhauled each month—Palas turbojets, Palouste gas generators and Artouste turboprops.

Already in the jet age with engine and conversion activities, SFERMA is now preparing to handle jet transport overhaul. A large group of SFERMA personnel has completed training on the Caravelle.

Tree Sprayer Turns De-icer

De-icing the wings of airline transports is a seasonal job and TWA at Chicago has found a way to keep the costs seasonal, too.

Roy Davis, the carrier's general maintenance foreman, worked out a five-month lease deal with Davey Tree Co., a local firm, to supply a spray truck used in summer for trees.

Instead of a direct outlay of $10,000 for its own de-icing truck, TWA rents the tree sprayer for only $145 a month.

AA Cuts Flight Delays

In the short span of seven months, American Airlines has sliced deeply into the percentage of flight delays chargeable to mechanical causes.

Although its complete fleet average nosed down only 1.7%, a much bigger improvement was realized for its Boeing 707 and Lockheed Electra delay performance. From November, 1959, to June, 1960, AA cut 707 delays from 12.9 to 6.8% of all flights. The Electra dropped from 9.7 to 5.9%.

On piston types here's how AA improved its operation: DC-7s from 5.5 to 4.9%; DC-7F (freighters) from 7.7 to 6.4%; DC-6 from 5.7 to 3.9%; DC-6A (freighters) from 8.0 to 7.0% and Convair 240s from 3.5 to 2.2%.

If you fly passengers in DC-4's you have only a short time left to equip your planes with weather radar.

Chamberlain Aviation has available now the first complete, packaged radome assembly for DC-4's ever made. It can be installed in your ships in approximately 170 man-hours.

The radome assembly for the DC-4 is identified as Cair Part No. 1012X. Manufactured under STC SA1-115, it consists of radome shell constructed of a phenolic honeycomb core sandwiched between plies of laminated fiberglass cloth, and includes metal bulkhead, antenna mount, stringers and fairing. The radome will accommodate the Bendix RDR1, Collins WP-101 or RCA AVQ-10. A kit is also available that provides shelves for mounting black boxes within the radome for sector scan systems. Included with the kit are installation drawings and engineering data which relocate airspeed system, pitot heads and heater ducting.

Know what's ahead — use a Cair Radome

Cair Radomes are in use on Martin and Convair commercial liners and on DC-3, Lodestar, Beechcraft and other Executive Aircraft. Write, wire or phone for complete details.

cair
CHAMBERLAIN AVIATION, INC.
Akron Municipal Airport • REpublic 3-6216 • Akron 6, O.

1853-A

FLIGHTEX FABRIC
WORLD'S PREMIER AIRPLANE FABRIC
THE DEPENDABLE SOURCE OF SUPPLY
FOR: AIRCRAFT FABRICS • TAPES • ACOUSTICAL INSULATION
FLIGHTEX FABRICS, INC.
93 Worth Street • New York 13, N. Y.
Leading Manufacturers of Fabrics and Tapes for the Aircraft Industry

Thrust Meter Harnesses Jet Sonics

A new concept in jet thrust indicators utilizing the sound of a jet engine as an electronic yardstick has been developed by Industrial Acoustics Co., 341 Jackson Ave., New York.

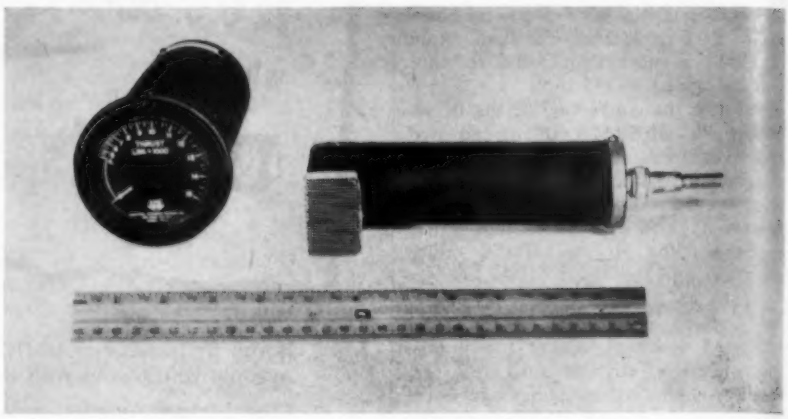
Jerome L. Murray (who does not work for Industrial Acoustics) came up with the idea that jet engine thrust is directly related to the sound of the operating engine. He reasoned that a sonic transducer located in a critical position near the jet exhaust, inside the pylon, and calibrated to a known thrust/sound quantity, could be connected to a cockpit instrument which would provide a continuous and instantaneous indication of engine thrust in pounds.

Armed with this premise, Industrial Acoustics secured a license with Mr. Murray and placed the development of such a system on a crash basis. Engineers at IAC came up with a prototype within two months.

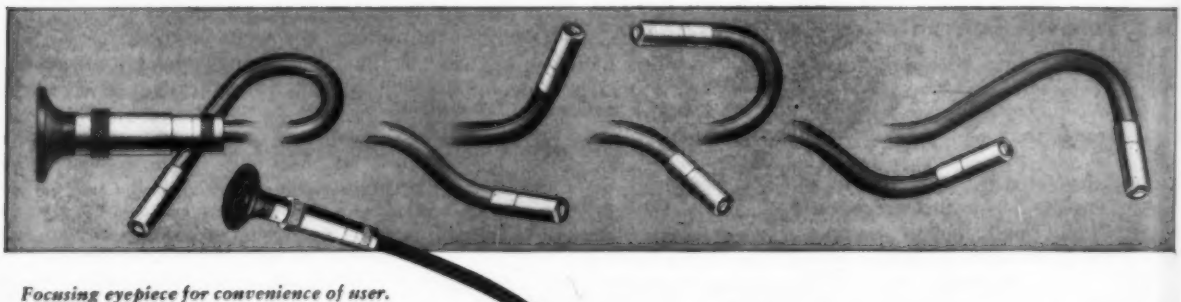
At this date the Model TI-1 Jet Thrust Indicator has been engine-tested on Boeing 707s on the ground and on open-air jet test stands. An in-flight test was still pending when *AIRLIFT* went to press, but FAA approval was expected shortly.

The instrument is compact. It consists simply of two parts, transducer and cockpit indicator. Present weight is three lbs.; future models are expected to weigh less.

The transducer is housed in an aluminum shell, and is isolated against shock and vibration. It is designed to be used in multi-engine aircraft without engine-to-engine interference.



RULER EMPHASIZES diminutive size of Industrial Acoustics' jet thrust meter components: indicator (left) and transducer (right).



Focusing eyepiece for convenience of user.

For the ultimate in precision viewing of intricate, hard-to-reach areas . . .

A.C.M.I. Fiber Optic *Flexible* Borescopes

FOR visualization in inaccessible curved areas where a flexible instrument capable of adapting itself to irregular contours is required.

Fiber Optic Borescopes are equipped with focusing eyepiece and fixed or movable objective as required. Illumination can be provided by a flexible fiber optic light carrier with an external light source or an annular fiber optic light carrier attached to the image carrier. Fiber optic light carriers are particularly advantageous for transmission of intense cold light to inaccessible or hazardous areas.

Please send details and sketch of your requirements.

AMERICAN CYSTOSCOPE MAKERS, Inc.

8 Pelham Parkway, Pelham Manor (Pelham), N. Y.

As a go-no go indicator it is expected to find ready acceptance as an aid to take-off monitors. In flight, it will pin down thrust at all altitudes and speeds and facilitate fuel economy.

The unit will be pre-calibrated and tested. Rapid field checks can be performed by operating the engine at a known thrust setting in the upper half range. The indicating meter then is adjusted to read the correct setting. Adjustment is by a screw-type calibrator located at the rear of the instrument housing.

The TI-1 is designed for engines from 4,000 to 15,000 lbs. thrust. Other models are available for engines of greater power.

The instrument's potential for other uses is virtually unlimited. For example, it could be integrated into a fire-warning system. It could be used as a hot-end malfunctioning detector. It could be used with a servo-mechanism to regulate fuel flow for constant thrust. The possibilities seem limitless.

Further information can be obtained from Martin Hirschorn, President of Industrial Acoustics.

INFO FOR THE ASKING

Shock absorber—Specification sheet describes Hardman Mark I passenger shock absorber dynamically tested to withstand 35-G decelerations.

Write: Dept. A/L, Hardman Tool and Engineering Co., 1845 S. Bundy Drive, Los Angeles 25.

Aircraft chairs—Folder describes chairs for business and commercial aircraft designed by Aerosmith Products division of L. B. Smith.

Write: Dept. A/L, L. B. Smith Aircraft Corp., P.O. Box 48-456, International Airport, Miami, Fla.

X-ray—Three new bulletins are available from Balteau Electric Corp.: *Use of Portable X-Ray Equipment in Aircraft Maintenance; in Storage Tank Fabrication;* and a *Comprehensive Listing of All Popular Non-Destructive Testing Methods and Applications.*

Write: Dept. A/L, Balteau Electric Corp., 5 New Street, Stamford, Conn.

Couplings—Sixteen-page catalog covers fluid, self-sealing, quick disconnect couplings made by Wiggins.

Write: Dept. A/L, E. B. Wiggins Oil Tool Co., Inc., 3424 East Olympic Blvd., Los Angeles 23.

SSB—Literature on new SSB receiver, model 605A single sideband "strip" receiver, is available from Wilcox.

Write: Dept. A/L, Wilcox Electric Co., Inc., 14th and Chestnut Streets, Kansas City 27, Mo.

Back-up rings—Parker Seal offers 8-page design and data catalog covering use of Parbak Back-Up Rings.

Write: Dept. A/L, Parker Seal Co., 10567 Jefferson Blvd., Culver City, Calif.

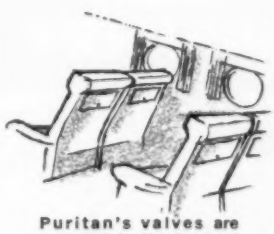
NOTES ABOUT SUPPLIERS

• Plans to establish terminal for non-scheduled airlines flying into Los Angeles International Airport have been announced by Garrett Corp.'s AiResearch Aviation Service Div. First contract for use of projected facility is with Hawaiian Airlines.

• Eastern Air Lines has awarded Waste King Corp. a contract for flight data recorders (see Engineering/Operations, page

Continued on page 69

Puritan Rides the Caravelle for United Airlines



Puritan's valves are mounted in the back of seats facing passengers, and in the Caravelle's bulkheads in both the lavatories, and where there are no seats forward of the passenger station.

Puritan's on-and-off valve, and first aid valve for passenger outlet stations have been specified by United Airlines for the oxygen breathing systems in their fleet of new Caravelle Jets, manufactured by Sud Aviation, Toulouse, France.

The Puritan valves enable passengers to be supplied with emergency oxygen if needed, and, during normal flights, with first aid oxygen for respiratory ailments.

Your inquiry on any problem concerning high altitude breathing systems and equipment would be welcome.

AEROSPACE DIVISION

Puritan

COMPRESSED GAS CORPORATION

SINCE 1913

2012 GRAND AVE. KANSAS CITY 8, MO.

WING

REVOLVING HEATERS
PROVE BEST FOR
HANGAR HEATING
for many major airlines

Constantly moving streams of warm air keep mechanics comfortable in all working areas. Low temperature differential from floor to ceiling prevails. All plane surfaces receive even heating. Quick heat recovery is assured after doors are closed. Ceiling mounting saves floor space. Hot air can't accumulate under roof. Models and capacities to suit any hangar. Steam, Hot Water or Gas.

Send for your copy of Aircraft Hangar Heating Bulletin today*

L. J. WING MFG. CO.
DIVISION OF AERO SUPPLY MFG. CO. INC.
196 VREELAND MILLS ROAD, LINDEN, N. J.
Factories: Linden, N. J. and Montreal, Canada
In Europe: Wanson, Haen-Nord, Brussels, Belgium
WC149

*

YOU'RE LOSING MONEY NOT COLLECTING EXCESS CHARGES!

DETECTO
Automatic Baggage Computing System

Weighs, computes, records, deducts free weight allowance and issues a receipt in seconds. Let us show you how to expedite pre-takeoff passenger handling.

Write to
DETECTO SCALES, INC.
Dept. A7, 540 Park Ave., Brooklyn 5, N. Y.

ECONOMICAL...SAFE
GROUND SERVICE
EQUIPMENT
BY
BIL-JAX

PASSENGER RAMPS

Stationary, self-powered, and mobile-mounted types, hydraulic elevating, ask for literature. For all type planes.

BAGGAGE STANDS
SAFETY LADDERS
MAINTENANCE STANDS
REFUELING LADDERS
WORK PLATFORMS
CARGO CARTS

These and many other items are made to customers' specifications. Inquiries invited on your special equipment needs. Write, wire, or phone . . .

GETS YOU UP IN THE WORLD
BIL-JAX INC
Archbold, Ohio

ADVERTISERS' INDEX

Aerotec Industries, Inc., Aerotherm Div. 59
Agency—Doremus-Eshleman Co.

AiResearch Aviation Service Div., The Garrett Corp. 56
Agency—J. Walter Thompson Co.

AiResearch Mfg. Div., The Garrett Corp. 10
Agency—J. Walter Thompson Co.

American Airlines, Inc. 2
Agency—Young & Rubicam, Inc.

American Cystoscope Makers, Inc. .. 66
Agency—Noyes & Sproul, Inc. Adv.

Bendix Corp., The
Pioneer-Central Div. 14
Scintilla Div. 33
Agency—MacManus, John & Adams, Inc.

Bil-Jax, Inc. 68
Agency—Chamberlin-Junk Adv., Inc.

Braniff International Airways, Inc. .. 62
Agency—Potts Woodbury, Inc.

Bristol Siddeley Engines Ltd. 15
Agency—Young & Rubicam, Ltd.

Canadair Ltd., (Sub. of General Dynamics Corp.) 35
Agency—Erwin Wasey, Ruthrauff & Ryan, Inc.

Chamberlain Aviation, Inc. 65
Agency—Ralph Gross Adv., Inc.

Collins Radio Co. 43
Agency—W. D. Lyon Co.

Continental Development Corp. 57

Delta Air Lines 58
Agency—Burke, Dowling Adams, Inc.

Detecto Scales, Inc. 68
Agency—J. M. Kesslinger & Assoc.

Douglas Aircraft Co., Inc. 18, 38
Agency—J. Walter Thompson Co.

E. I. Du Pont De Nemours & Co., Inc. 4
Agency—Batten, Barton, Durstine & Osborn, Inc.

Fairchild Engine & Airplane Corp. .. 7
Agency—Gaynor & Ducas, Inc.

Flightex Fabrics, Inc. 65
Agency—The Powerad Co.

General Electric Co., Flight Propulsion Div. 63
Agency—Deutsch & Shea, Inc.

Goodyear Tire & Rubber Co. 3
Agency—Kudner Agency

Ideal Electric & Mfg. Co. 52
Agency—Mariva Industrial Adv.

Kaman Aircraft Corp. 72
Agency—Charles Palm & Co., Inc.

Lockheed Aircraft Corp. 60, 61
Agency—Foote, Cone & Belding

Phillips Petroleum Co. 53
Agency—Lambert & Feasley, Inc.

Pratt & Whitney Aircraft Div., United Aircraft Corp. 8, 54
Agency—Campbell-Ewald Co.

Puritan Compressed Gas Corp., Aerospace Div. 67
Agency—Richard Lane & Co.

Radio Corp. of America, Industrial Electronic Products 12, 13
Agency—Al Paul Lefton Co., Inc.

Resistoflex Corp. 20, 21
Agency—Adams & Keyes Inc. Adv.

Rolls-Royce Ltd. 71
Agency—The Wesley Assoc. Inc.

Sunair Electronics, Inc. 16
Agency—Tally Embry, Inc.

Teco, Inc. 6
Agency—Jaycraft Co.

Texaco, Inc. 24
Agency—G. M. Basford Co.

Trans World Airlines, Inc. 23
Agency—Foote, Cone & Belding

Warner Lewis Co. 41
Agency—Paul Locke Adv. Inc.

L. J. Wing Mfg. Co. 68
Agency—Michel-Cather, Inc.

THE BULLETIN BOARD

Undisplayed Advertising: $2.00 per line, minimum charge $6.00. Cash with order. Estimate 30 capital letters and spaces per line; 40 small lower-case letters and spaces per line. Add two lines if Box Number is included in lieu of advertiser's name and address. **Displayed Advertising:** $20.00 per column inch. Space units up to full page accepted in this section for classified-type advertising. **Forms close three weeks preceding date of issue.** Address all correspondence to Classified Advertising Department, Airlift Magazine, 1001 Vermont Ave., N.W., Washington 5, D.C.

FOR SALE

FOR SALE
C-46F AIRCRAFT
Passenger and Cargo
With or Without
T-Category Kit Installed
Immediate Delivery
The Flying Tiger Line Inc.
Burbank, Calif.
Call or Cable
Fred Benninger
Executive Vice President
Tel: Triangle 7-3411 Cable: Flytiger

FOR SALE
LOCKHEED LODESTARS

Wright 1820-56A Engines—HSP 33D50 Props—1350 HP for T.O.—19,500 lbs. Gross Weight—De-icer Boots—Learstar Rudder Tabs—Fuselage Saddles—Sierracin Electrically Heated Windshield—CB Fire Extinguisher—Edison Fire Detection—Sperry Integrated Instrument System—Collins 51R3 NAV—ARC Type 15 NAV—Dual ADF—Collins 17M1-51X1A and ARC 210 Communication System—Bendix RDRIC Radar—2500 VA Inverters—Executive Interior—Divan—6 Seats—Tables—Closet — Lavatory—Complete Galley—Asking $50,000—Spares Available—Brokers Protected.

Contact: Air Transport Department
Continental Can Company, Inc.
Box 791, Morristown, N.J.
Jefferson 8-3070

FOR SALE

28 Pass **PBY** 1830 - 92's
Airstair Door—Airline Dual Radio
Vista Lounge—2-Pilot Cockpit
Beautiful Int.—Windows All Seats
Airline Fire Prevention and Warning System
Zero Time Since Ohaul and Modification
$110,000

5 MARTIN 202'S
44 Pass. Airline Configuration
Equip. for Car Part 40
Excellent Condition
$110,000 ea.

PACIFIC AIR LINES INC.
San Francisco Int'l Airport

AN FITTINGS & HARDWARE

Stainless, Aluminum, Brass, Steel All sizes—immediate delivery from world's largest shelf stock. Buy direct from manufacturer. Lower prices—quicker service. Send for free wall charts showing complete line of AN & MS fittings and hardware. We machine parts to your own print; also, we sell AN & MS Forgings.

COLLINS ENGINEERING CORPORATION
9050 Washington Blvd., Culver City, California

DOUGLAS C47
Aircraft For Sale
Details from
ASTRAEUS LIMITED
167 Victoria Street, London S.W.1
Cable: Arroffay London
Tel: VICtoria 1403

FOR SALE
SPARE PARTS INVENTORY
for
C-46, DC-4, DC-6, 1049H
Constellation Aircraft
also
Wright Compound
3350-EA-3 Engines
Pratt & Whitney
R2800 CB16/17 Engines
THE FLYING TIGER LINE
Burbank, California
Call or Cable Doug Duly
Tel.: TRiangle 7-3411 Cable: Flytiger

NOTES ABOUT SUPPLIERS

Continued from page 67

57) for its fleet of turboprop-powered aircraft. Eastern earlier purchased 40 units.

• Recent survey by Garrett Corp.'s AiResearch Div. shows 66 percent of the gas turbine starters user on commercial jets to be produced by AiResearch. Total of 204 units are now in use.

• Avien, Inc., of Woodside, N.Y. will acquire Electrol, Inc., of Kingston, N.Y. Electrol makes hydraulic equipment, specializes in landing gear for executive aircraft.

• Marconi Type AD. 722 automatic direction finders will be fitted in AVRO-748 twin turboprop aircraft being built by the Government of India. Units will be manufactured by Bharat Electronics, Ltd., in Bangalore. Miniaturized unit weighs less than 10 kg.

• New sales department designated Smithair Sales has been established by L. B. Smith Aircraft Corp. in Miami, Fla. to handle used executive aircraft.

• Merger of Hiller Aircraft Corp. and The Electric Autolite Co. has been announced. Hiller will continue to operate as separate unit under Autolite's control.

HELP WANTED

Sales Manager Wanted. Scheduled carrier desires aggressive sales manager with particular experience in the international agency and charter sales field. Salary open. Send your confidential personal statement to **BOX 215, AIRLIFT MAGAZINE, 1001 Vermont Ave., N.W., Washington 5, D.C.**

CHIEF STEWARDESS

AIRLINE in western United States has opening for chief stewardess. Stewardess experience required, supervisory experience preferred. Include experience, education, photograph and salary requirement in response. **BOX 212, AIRLIFT MAGAZINE, 1001 Vermont Ave., N.W., Washington 5, D.C.**

REPRESENTATION WANTED

We need several crackerjack reps who regularly call on the airlines in the U.S. We have furnished plastic interior and galley equipment to many leading airlines. Now we want to expand our sales force. Interested? **Box 213, AIRLIFT MAGAZINE, 1001 Vermont Ave., N.W., Washington 5, D.C.**

CAN YOU SELL AIR CARGO? THEN RIDDLE AIRLINES NEEDS YOU. Comes now the opportunity you have been looking for with the fastest growing air freight airlines—Riddle. Send your application and background now for immediate consideration. **Riddle Airlines, Inc. P.O. Box 48-535 Miami, Florida.** Attention Robert M. Hewitt, President.

FOR SALE
EIGHT AIRLINE DC-3s
28 seats—G-202A Engines—Air Stair Door
FOR INFORMATION
Glenn W. Irish, Mohawk Airlines, Utica, N.Y.
RE 6-3311

SITUATION WANTED

Wanted: a position where I can utilize my extensive education and intensive experience in aviation administration fields. B.S. and M.S. Married, 31. Available soon. **Box 214, AIRLIFT MAGAZINE,** 1001 Vermont Ave., N.W., Washington 5, D.C.

Mad Scrambles Are Daily Diet For London Airport Patrons

By Wayne W. Parrish

Just the other day I read in the papers that London Airport was so near to capacity that the British were going to have to expand facilities at another airport to take care of the traffic.

This is a real bit of nonsense, if you ask me. I know of no airport in the world so underused for its size, nor any airport of any size so inefficient in its use of ramp positions.

Last May I hopped over on a quick visit and wanted to fly down to Geneva, Switzerland, for a night to chat with our European director. Now Geneva is not very far away, really, but a flight there becomes a major operation the way the Europeans operate their airlines.

A reservations snafu

First of all, the airline that was supposed to have gotten my reservation did get it, all right, but nobody remembered to tell me about it. After waiting overly-long, my contact finally discovered that I was booked on a BEA flight and I had exactly ten minutes to get to the in-town check-in station in the southwest part of London. Naturally, since it took over twenty minutes by cab, I missed the bus. So I hired a cab and spent a fair amount of money dashing to the airport.

Now mind you, the fact that I was late had no direct relationship to flight departure, because in London you start for the airport early in the morning to get a noon departure, since they don't use airplanes for speed, they merely use them in place of railroads and ferries as a matter of alternate convenience. So I arrived over a half hour ahead of flight departure and patted myself on the back for the achievement of myself and a very cooperative cab driver.

Checking in no guarantee

Of course I had to get a ticket, and I wanted to use my travel card since I hadn't had time to exchange some money. But before getting my ticket (some 60 feet or so from the check-in counter) I checked with the girl handling the BEA flight. So she knew I had arrived and I thought I was protected.

I managed to get my ticket in a few minutes—seemed to be unduly fraught with red tape—and returned to the check-in counter. The girl said the flight had been closed. But I said I had reported in and she knew I was getting my ticket. Anyway, I said, there was still a half-hour before departure. Sorry, was the snippy answer, and if you want snippy treatment you can get it from the civil service class of employe in England where they are protesting about working two hours a day and the public be damned.

WWP IS STILL "collecting airports" in the USA. In late August he stopped at Sun Valley-Hailey-Ketchum Airport in Idaho on West Coast Airlines. It was No. 566. As of Sept. 15 he had reached No. 569, with about 19 to go to complete the national system of airports served by scheduled airlines.

Well, then, somebody spoke up and said I could take Swissair which was leaving five minutes later. (Isn't that wonderful in Europe where airlines pool services and then operate within five minutes of each other and no other flights until night?). Okay, I thought, I like Swissair, it's a good airline and I couldn't care less about five minutes. Now remember, the Swissair check-in was right next to the BEA counter—five feet apart—and you should have heard the scream of dismay when I told the girl I wanted to go to Geneva. The flight is closed, she said, or was about to be. Anyway, I was too late. Before I had a chance to explode, a supervisor—a calm, collected gent, gave her orders to put me on the trip. (I suppose some jerk of a union steward reported the guy for over-efficiency.) So I managed to make the flight, but just.

If you have been in London Airport, you know the deal—everybody for a flight collects in a lounge and then some super-efficient babe in uniform escorts you to your airplane. They need escorts, because any airplane you ever take is either (1) a half mile at one end past a whole series of empty parking places or (2) you get into a bus to go a mile through subways and tunnels and roundabouts to a spot which is only about 300 feet away in the first place but which is separated from the terminal by lots of spaces for airplanes which aren't there.

This time it was a long walk. A long one. And not one solitary airplane in a near-by position. What ridiculous inefficiency! Well, anyway, I had a good flight on a Swissair Metropolitan (a Convair) and a good meal and arrived in Geneva despite undergoing the hours-long obstacle course at what should be called a stagecoach station instead of an airport. (The statistics show London to be far down the scale in operations and passengers—'way below the average metropolitan airport in the U.S.)

Like an airborne circus

Coming back, I managed to squeeze on as a very last-minute go-show on a BEA Viscount, loaded to the rafters with customers and baggage. I was right next to the galley with no room to put my overnight bag without having the cabin crew stumble over it. Ever notice the service on BEA? Actually it's very good, as service goes, but I get the feeling of being in a circus trying to watch the acts while somebody is stumbling over me trying to sell cigarettes and brandy, somebody else serving tea, a third person selling drinks by the glass, and all trying to make change in 15 different currencies while juggling trays and bottles and teacups on a bumpy flight. It's chaotic.

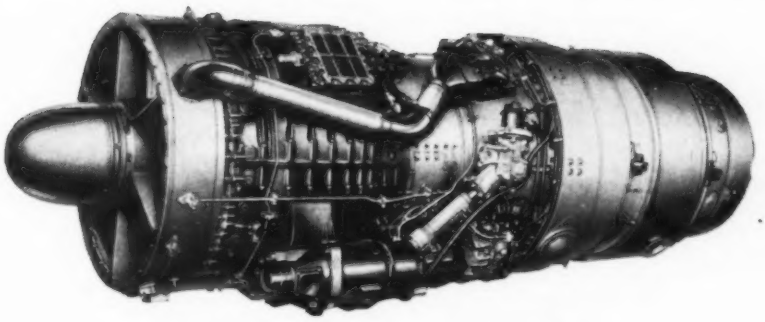
But to get back to my subject, know what happened when we arrived in London? Our Viscount parked in the second or third row away from the terminal. There wasn't an airplane within 500 feet, much less one between us and the terminal. So this capacity load of passengers, complete with handbags, souvenirs, bottles, cartons of cigarettes and extra clothing, all had to pile out of the airplane into several of those silly buses, and travel a mile through the extraordinary maze of roads and underpasses, and know where we ended up? A few hundred feet from the airplane at the terminal where we had to get out of the bus and walk up a ramp and into the lounge. How absolutely absurd can an operation be?

It's not the airport . . .

Continental airplane operations at London Airport are so completely obsolete that one wonders who in the world has set up the standards for bus service, check-ins, and the like. It takes a day to go from downtown London to downtown Paris a distance of only 230 miles. Scheduling is incredibly inefficient. Does London need a new airport? I should say not. Let them start using the one they've got. When London even begins to approach the volume of traffic that we have in Denver or Dallas or Atlanta, then let them expand.

Also, in the name of all of those who have sweated and strained to bring about the airplane, let London stop "closing out" flights a half hour before departure. What are they operating there, ocean vessels?

ROLLS-ROYCE AVON



overhaul life now

2000 hours in

B.O.A.C. Comet 4s

with no intermediate inspection of internal parts

ROLLS-ROYCE OF CANADA LIMITED, BOX 1400, ST. LAURENT, MONTREAL 9, P.Q.

ROLLS-ROYCE LIMITED, DERBY, ENGLAND

AERO ENGINES • MOTOR CARS • DIESEL AND GASOLINE ENGINES • NUCLEAR PROPULSION

OFFICE OF THE PRESIDENT • THE KAMAN AIRCRAFT CORPORATION • BLOOMFIELD, CONN.

MEMO TO JOHN:

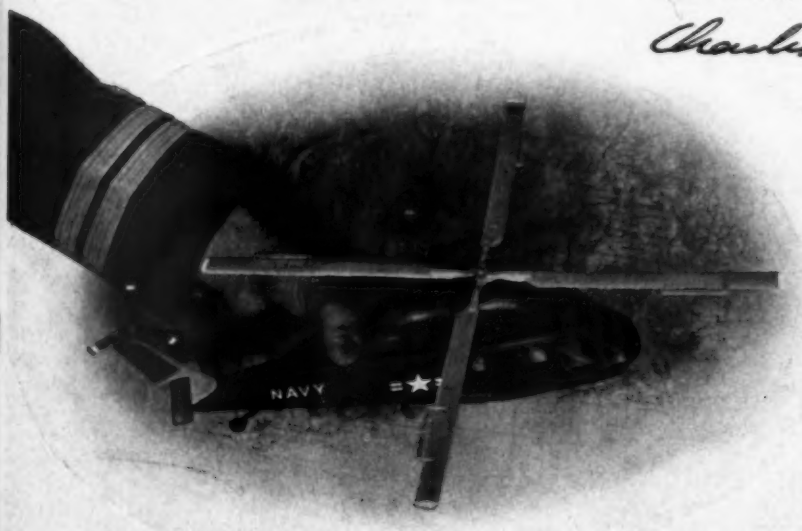
Thank you for your letter in which you express your preference for Kaman helicopters. As you put it:

TRRffIC IN HEIICOPTERS. That YOUR is the truth. It sure is ~~that~~ ~~is~~ the truth.

Everyone here at Kaman Aircraft is proud of the helicopters and aircraft we build and supply to various branches of our Armed Forces. It makes us doubly proud when boys like you write and tell us what you think. We know that you realize that our whole National Defense program is one sure way of guaranteeing that you and your friends will get the chance to grow up and become terrific doctors or lawyers or scientists... maybe even terrific helicopter pilots.

Sincerely,

Charles H Kaman



...in National Defense KAMAN is part of the plan

**Facsimile of a letter to the company